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THE RELATION OF LARYNGOLOGY, RHINOLOGY AND OTOLOGY TO GENERAL MEDICINE *

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As this section is only one unit of a great national body representing every department of medicine, it seems appropriate to spend a short time in reviewing our relation to general medicine.

A glance at the annual programs covering the last five years gives us some conception of the range of our specialty, as we are called on to deal directly with specific problems.

The following lists of special and general diseases, which may originate from some focus, or have their incidence in the nose or throat, bring home to us the importance of laryngology and rhinology to general medicine and the indirect problems which we must meet as consultants. In compiling these lists, I have not presumed to represent the opinion of internists, or workers in other specialties.

Each list, therefore, was submitted to an authority in his respective department and received his endorsement.

I have attempted only to arrange in some sequence what is already known, and also to emphasize the fact that we are being drawn into more intimate relations with internal medicine rather than away from it.

One cannot be a good specialist without having his outlook on general medicine broadened. His special study becomes the objective point to which he brings all correlated facts and differentiates them.

OPHTHALMOLOGY

The diseases of the eye arising from foci in the nasopharynx have been added to each year, until now the etiology of the following list is conceded. For example:

Retrobulbar neuritis from infection in the ethmoids and sphenoids.

Acute edema of the lids and congestion of the conjunctiva from the ethmoids.

Pain and photophobia from acute congestion in the anterior ethmoid region.

Iritis from a focus in the tonsils, teeth or sinuses.

Blocking and infection of the tear duct from obstructions of the nasal end of the duct.

Orbital cellulitis from the ethmoids.

Optic atrophy from the pressure of tumors in the ethmoid region.

Ocular displacement and diplopia from pressure in the ethmoid region, and the supposed connection of phlyctenular keratitis to infected tonsils and adenoids.

SKIN

We may have the following skin lesions which may be primary in the nose or throat, or arise from some focus:

Impetigo from septic discharges from the nose or ear.
Erysipelas from erosions, or discharge from the nose or ear.
Lupus, extension from the nose.
Lepra from the nose.
New growths from the throat, nose or ear.
Angioneurotic edema.
Lymphangioma, extension from the tongue or cheeks.
Syphilis may be primary in the nose, throat or ear.
Tuberculosis may be primary in the nose or throat.
Scrofuloderma secondary to tonsillar infection.
Noma, primary in the nose.
Scarlet fever, incidence in the throat.
Measles, incidence in the throat.
Erythema from infection of the nose or ear.
Urticaria from septic discharges.
Cellulitis from septic discharges from the nose or ear.
Lichen planus in the throat as a neurotic manifestation.
Leukoplakia, primary in the soft palate.
Keratosis, primary in tonsils, pharynx and base of tongue.
Pemphigus, primary in palate, pharynx, tonsils and buccal surfaces.
Actinomycosis, primary in pharynx and tonsils.
Glanders, secondary in the nose.

ORTHOPEDICS

In the department of orthopedics, we have the arthritides, acute, subacute and chronic, in which the nasopharynx is supposed to share the honors with the gastro-intestinal tract, as an etiologic factor. It is still an open question, however, whether the gastro-intestinal disorder may not itself be secondary to a focus in the nasopharynx.

DISEASES OF CHILDREN

Nasopharyngeal conditions in children may be manifest as:

Syphilis, primary in the nose, throat or ear.
Tuberculosis, primary in the nose or throat.
New growths, primary in the nose, throat or ear, especially epidermoid cancer and lymphosarcoma.
Measles, incidence in the throat.
Scarlet fever, incidence in the throat. (Dr. Place calls attention to the fact that in those cases in which one tonsil has been removed and the other not, on the operated side the evidence of scarlet fever is almost nil. The course of the disease seems to be milder. Dr. Place also thinks that pigeon and funnel shaped chests in children are due to nasal obstruction, and that rickets play a secondary rôle.)
Vincent's angina, primary in the tonsils.
Streptothrix, primary in the tonsils.

*Chairman's address, read before the Section on Laryngology, Otology and Rhinology at the Sixty-Eighth Annual Session of the American Medical Association, New York, June, 1917.

Rheumatism, from focus in nose, throat or teeth.
Endocarditis, from focus in nose, throat or teeth.
Nephritis, from focus in nose, throat or teeth.
Arthritis, from focus in nose, throat or teeth.
Bronchitis, secondary to adenoid or tonsil infection.
Pneumonia, secondary to adenoid or tonsil infection.
Abscess, retropharyngeal or peritonsillar.
Mycosis, primary in tonsils and pharynx.
Herpes, primary in the fauces and pharynx.

DUCTLESS GLANDS

The relation of focal infections in the nasopharynx to diseases of the ductless glands remains unsolved.

Beebe remarks that there is no complicating factor in goiter, which is more troublesome or more dangerous to the patient than tonsil infections to which they are subject. This observation is significant, as repeated tonsillar infections at more or less regular intervals are usually exacerbations of a chronic focus and not fresh infections.

That thyroid conditions are made worse by toxemia originating in the nose or throat is conceded. What rôle such infections play in the etiology of goitrous conditions is a problem particularly for those of our fellows living where ductless gland disease is endemic.

GENERAL MEDICINE

Infection as a cause of general diseases is as old as the history of medicine. That such infection has its origin at the beginning of the respiratory tract as a chronic focus with acute exacerbations is recognized by clinicians in an increasingly large number of general diseases.

In 1894 many writers, including Pasteur, Frankel, Martin, Selmi and Bouchard, pointed out the danger to individuals from autointoxication caused by ptomains, which were formed by the action of bacteria on organic matter and distinguished between the toxic and the nontoxic. The one invariable circumstance, however, surrounding the development of ptomains was the part played by bacteria.

It is common knowledge that under normal conditions streptococci, staphylococci, *Micrococcus catarrhalis*, pneumococci, diphtheria, and pseudodiphtheria bacilli, meningococci, tubercle bacilli and many other pathogenic bacteria are to be found in the nasopharynx. Many of these we associate with the most dangerous clinical symptoms. But it is also known that the same organisms may be nonpathogenic until conditions arise that increase their virulence. No one believes that such organisms are swallowed, or enter the lymph or blood currents nonvirulent, pass Nature's protective secretions and then from the lowered resistance of the host, or any other cause, become manifest as an active arthritis, endocarditis, nephritis, or other pathologic condition.

On the other hand, we know that in the nasopharynx and teeth we may have all the conditions present to cause a toxemia, septicemia or pyemia with acute, subacute or chronic manifestations in distant organs, that is, specific organisms in patients at an age when the resistance is often lowered, organs undergoing involution, disintegrating organic matter, temperature, moisture, etc., which means that we may have virulent chronic foci, as well as acute local infections.

These facts were called to the attention of the medical profession by Arkovy of Budapest during the period from 1878 to 1898, and were substantiated by the painstaking microscopic findings of Miller of Berlin from 1884 to 1894, and by the clinical experience of William Hunter of London, who published his results in the *Practitioner* in 1900. Recently these findings have been emphasized by Billings, Rosenow, Davis, Mayo and others.

Miller of Berlin, who was educated as a physician and also as a dentist, showed bacteriologically that focal processes in the teeth, tonsils or sinuses kept up a low grade infection of the adjacent tissues, and during exacerbations this might extend by continuity, or directly by way of the lymphatics or blood stream to neighboring or remote organs. Haskins since 1894 has repeatedly called attention to toxemia and septic conditions starting in the alveolar process.

It is known to laryngologists that a large number of people carry for years a constant streptococcus focus in one or all of these localities, and that so-called repeated infections are only exacerbations of a chronic process, as evidenced by the fact that so-called colds start in the following way:

For years, a patient will be subject to sore throat, and then the infection goes up or down, or as a cold in the head, which then goes down; but the clinical symptoms seldom alternate, showing that the focal processes have a period of quiescence and are then subject to acute exacerbations.

Certain clinical manifestations of a general character are recognized, as resulting from such foci, arthritis, myositis, endocarditis and nephritis being the more common, with acute or chronic symptoms. In addition, many clinicians include pneumonia, bronchitis, secondary anemias, duodenal and gastric ulcers, cholecystitis, appendicitis and chorea. The clinical manifestations are often worse coincidently with an exacerbation of the focal process.

The relation between this focal process and the syndrome is often overlooked because of the stormy character of the exacerbations. It is not safe to trust to the history of the patient. Many patients have only a slight pharyngeal irritation, particularly in the morning, which they ascribe to smoking, indigestion, etc. The onset of the exacerbation to them is a fresh attack of their malady. More than this, if there is an enclosed abscess in connection with the teeth or tonsils, it may discharge directly into the lymphatics. It is necessary, then, for the clinician on recognizing symptoms of toxemia to remember that there may not be much local evidence to confirm his diagnosis.

The number of diseases whose etiology may depend on some focus in the nasopharynx is sufficiently formidable to show (1), the service which our speciality can render the internist; (2), our relation to other specialities, and (3) that foci in the nasopharynx and teeth may be manifest only by remote general symptoms; but when such symptoms indicate toxemia, such foci should be suspected.

Rarity of Eclampsia in Germany at Present.—The *Nederlandsch Tijdschrift*, quoting the *Deutsche medizinische Wochenschrift* of recent date, states that since the war began the number of cases of eclampsia in connection with pregnancy has dropped very low. The hospitals call attention to this in their reports. Warnekros accepts it as the result of the lesser consumption of fat and albumin, imposed by war conditions, and urges that all pregnant women from the sixth month onward should be restricted to a vegetarian diet. Grumme protests against this, saying that as only one woman in five hundred, at the utmost, presents eclampsia, it would be like trying to drive out the devil with Beelzebub.

PROGRESS IN TEACHING PSYCHIATRY*

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The request of our secretary for a contribution to this meeting suggested to me an extension of my discussion[1] on the psychobiologic level of medical facts (presented two years ago in San Francisco and published in THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION, 1915), a consideration of my present plan of teaching psychopathology and psychiatry and of some principles characteristic of the plan. No real physician is altogether specialist and no real specialist fails to define his share as part of the great problem of helping the sick and troubled patient. The psychiatrist may at last say that he has found himself. Instead of being singled out from the rest of physicians as what used to be called an asylum man, pure and simple, he has found his sphere in the special study of the *patient as a person,* the special study of the total activities and total behavior, the kind of thing which cannot be singled out as merely the function of any one detachable organ, not even of the brain by itself.

In the medical curriculum the student is led to take man apart and to study the structure and function of these parts; it then falls to the brain physiologist, and ultimately to the psychologist and psychiatrist, to show the student how these parts and functions are integrated into that whole which we know as the personality of the patient, the subject of the life history, the entity to which we as physicians appeal when we give advice and map out a routine of helpful behavior and adjustment; that entity which we try to bring into health- and success-bringing relations with ourselves, the environment, and personal life problems. We deal not only with organs but also with the integrated and integrating personality and its functions. The psychiatrist thus deals with a wide range of facts usually left to untrained common sense, but now available as a more and more organized body of facts, methods of study and methods of therapeutic procedure.

An important advance in teaching comes from this gain in a more natural *definition* of the field. As I outlined two years ago in my contribution to the San Francisco meeting, the second year student gets an introduction into the methods of the taking of a life-history, a study of the assets and determining factors, a general discussion of the intelligence tests, the usual mental status, the method needed in examining a case of aphasia and the principles of getting at the dynamic determining factors of the patient's life, with a study of the orientative activity, the associative processes and resources, the affective assets, and habit-formation.

With this preparation, the student begins his third year with a study of the principal reaction-types which he has to learn to understand and distinguish from one another. We may begin with the organic reaction-types with their memory and judgment defects (very specifically brought out in the parenchymatous brain syphilis or paresis, in senile dementia and in the Korsakoff reaction) and the epileptic and epileptoid reactions. The epileptic and the Korsakoff reactions lead over to the delirious-hallucinatory reactions, which are either mainly toxic as in the drug and alcoholic deliria, or lead over to reactions with a more constitutional ground work, as in the acute and chronic hallucinoses.

The next reaction-type discussed is the affective one, either tending to appear in attacks constituting the manic-depressive and cyclothymic disorders, or leading over to the substitutive less diffusely affective disorders of hysteria and psychasthenia, and the deeper substitutive disorders of the schizophrenic type with its more benign and its graver forms. Next we find the paranoic disorders, and the constitutional disorders of balance or perversion, and the developmental *defects* such as idiocy, imbecility, etc.

SUGGESTIONS AS TO METHODS OF STUDY

The student is told from the outset that while each reaction-complex tends to have its own structural etiologic and prognostic implications and meanings, the various types are not necessarily exclusive of each other in one and the same patient and that we must learn to recognize combinations.

Each patient is studied specifically for the etiologic factors (exogenic, somatogenic, neurogenic, psychogenic and constitutional); and for therapeutically responsive features, so that ultimately the patient stands before us as an experiment of nature, sometimes simple, sometimes complex, not an entity deriving light or meaning from the pigeon-hole of some classification, but an orderly *set of facts* inviting the physician to recognize more or less clean-cut problems of adjustment: the somatic therapy, the rest-treatment and graded reeducation, and the study and readaptation of psychogenic and constitutional problems. The third year course thus familiarizes the student with the essential *types* and *problems,* so that in the fourth year the student is prepared to meet the rank and file of the outpatient and house cases and is able to follow the more detailed discussions of the psychopathologic, cerebral, general somatic and endocrine components of the cases as they are met, and also the problems of management, of commitment, etc. No student is admitted to the final examination without having personally examined and reported in writing a minimum of six cases.

The most fundamental departure from current tradition is the emphasis not on the question whether the patient presents one or the other of a set of diseases, but rather on the question how many facts and conditions enter into the state of the patient, what reaction-complexes are recognizable as relative entities and what psychopathologic, cerebral, general somatic, endocrine, toxic and infectious components; in other words, we take the same attitude which modern pathology has assumed in general medicine. We get away from the dominant notion of classification of each patient as having just one exclusive disease, and that usually a rather artificial traditional entity but rarely realized completely in any one case; we prefer to urge the student to consider whatever group of facts and factors he actually finds in the patient before him. We certainly would not classify our necropsy cases according to one single cause of death, and neglect to do justice to the other facts and factors present; and why should we not train the student of psychiatry to learn to appreciate and trust the facts and factors by themselves and in combination as

* Read before the Section on Nervous and Mental Diseases at the Sixty-Eighth Annual Session of the American Medical Association, New York, June, 1917.

1. Meyer, Adolf: Objective Psychology or Psychobiology with Subordination of the Medically Useless Contrast of Medical and Physical, THE JOURNAL A. M. A., Sept. 4, 1915, p. 860.

actually found? It is absolutely essential that he learn to use all the means of general medicine at his disposal and also to work safely with the psychobiologically integrated part-phenomena and functions, as well as with the frequently more or less artificial units of nosologic disease entities.

Our general medical, clinical and necropsy diagnoses no longer fail to specify the combination of facts to be dealt with; and psychopathologic and psychiatric diagnoses are at last reaching the same principle. We may have a right to speak of manic-depressive psychoses, and of dementia praecox types of mental disease in order to designate certain broad categories similar to the terms used when we speak of Bright's disease, or of valvular disease; but such terms would hardly be regarded in modern medicine an adequate and sufficient "diagnosis." For the practical purposes of today, articular rheumatism is no longer a complete diagnosis, but a suggestion in the direction of a proper search for infectious sources and their working. Similarly we have to train the student of psychiatry and psychopathology to heed the structural facts, the toxic and endocrine and serologic facts, and the constitutional and psychogenic facts, and to learn to work with them, individually and in combination. Even the simplest general diseases, the acute infections, are no longer viewed as an issue of the mere presence of a microbe; they present an infection plus a problem of constitution, or of more or less immunity; and similarly the disorders of the psychobiologic adaptive processes must be viewed as the resultants of a group of facts and factors, and by accepting this view, we get on a natural working basis.

SUMMARY

To sum up the present trend of teaching psychiatry:

1. Psychiatry cannot limit itself to the traditional asylum-diseases. It has become the medical study of all types and forms of disorders or involvements of the total behavior and mentation, from the simplest, we might say normal, defects and difficulties of adaptation to the more sweeping affections, some of which *may* disqualify the patient for being his or her own safest guide and adviser and then may enter the category or temporary phase of committable disorders.

2. The second year course of the medical student includes the methods of recording a medically useful biography, of using the standard tests of intelligence and motor performance, of making out the principal facts and determining factors of a normal individual's make-up and reactive tendencies.

3. The third year course deals with the standard reaction-types or reaction-complexes of psychopathology and the factors entering into them.

4. The fourth year course takes up the general routine of cases, and the study of special problems and an individual study of at least six cases by each student.

5. The principal departure from tradition is the inclusion of normal psychobiologic adaptive problems, and the getting away from the dogmatic notion of "one person one disease" dictated by a classification-ridden tradition, and from a nosology which neglects too many points important for the understanding and treatment of the actual patient.

6. Hence, we should say that the student is led to recognize the facts and factors entering into the simple entities and combining in the more complex disorders, so that he may get a dynamic as well as a structural conception of the patients whom he is called on to treat.

One of the principal consequences of this mode of instruction is that the students frequently find patients in other divisions of the hospital who, according to their impressions, should be referred to the psychopathologic or psychiatric department, especially many of those patients who, according to the internist or surgeon "have nothing the matter with them," but who should not be sent away without a study of their psychobiologic adaptation. It is probably not practicable to transfer all these patients; hence, why not get accustomed to *use* the psychologic training wherever it is needed? We have to realize that in all branches of medicine, physicians are expected to apply psychopathologic methods, just as modern psychiatrists make use of all the methods and experience presented by the other departments of medicine, even if the patients have mainly psychopathologic problems.

Another consequence is that quite a few students begin to see, in conditions which are looked on as normal or as merely nervous, possibilities of readjustment which may become of inestimable value to the patient and in the interest of preventive medicine and hygiene because the worker is put into the position which enables him to deal with the component factors before the full-fledged traditional pictures have established themselves, and have begun to overawe both patient and physician.

ABSTRACT OF DISCUSSION

DR. E. ZUEBLIN, Cincinnati: From the standpoint of general medicine we feel the necessity of a closer study of conditions classified under the category of neurasthenia. In using this term we frequently underrate the influence of the mind on functional disorders, and often, on account of an erroneous interpretation of symptoms, we fail in our treatment. The student as well as the medical practitioner must be instructed by close observation of many nervous and psychiatric patients how to differentiate psychogenic symptoms from those arising from organic lesions. Dr. Meyer's plan of instruction means a decided step in advance as a help to understand and analyze the patient's attitude, as a better way of interpretation and treatment of the morbid manifestations. The student having an opportunity for psychiatric training according to Dr. Meyer's plan can be congratulated.

DR. TOM A. WILLIAMS, Washington, D. C.: The objection might be raised by some of the members that Dr. Meyer's suggestions are a "counsel of perfection," and only possible when three years can be given to specially well prepared men to profit by such a course. This feeling must be in the minds of many, so I would explain that it is not necessary to give a course of three years in order to impart knowledge of practical utility, nor is it necessary to have highly gifted students. At Harvard University there is only a one-year course of two sessions a week. By means of the principle set forth at the conference on medical education at the Atlanta session of the Southern Medical Association, the results are astonishing as regards the insight of the students, in spite of the fact that they are not men of extraordinary capacity and that they have comparatively little preliminary and medical training. The clinical material, too, is often scanty and poor. In spite of all these drawbacks, there is a most satisfactory gain in pragmatic clinical power through the acquisition of the psychiatric attitude toward the patients. Therefore, we need not think that we teachers are not able to do more with the conditions that pertain greatly to improve the training in psychiatry and neurology in the average medical school.

DR. ADOLF MEYER, Baltimore: At Johns Hopkins Medical School we have in the third trimester in the second year two hours a week, and the same in the first trimester of the third year. In the fourth year we have three hours a week during

one trimester. We do not feel that we are reaching perfection, but simply using our opportunities so as to give the student a better chance for digestion by spreading the obligatory work over the three years; in addition to this, we provide elective work for those who have more time and special inclination.

THE TECHNIC AND AFTER-TREATMENT OF HEMILARYNGECTOMY AND TOTAL LARYNGECTOMY *

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Laryngectomy is a time-consuming operation even in the most expert hands, making the question of anesthesia of major importance. Some operators are so fearful of the lethal effect of general anesthesia that they have gone to the extreme of doing the entire operation, including the block removal of the neck tissues, under local anesthesia. From my observations, the brutality of such a procedure is unjustifiable. I believe that the combination of both kinds of anesthesia gives us the only present solution of the problem. From the standpoint of anesthesia, the operation may be divided into three stages: (1) the skeletonization of the larynx and trachea; (2) the removal of the larynx, and (3) the closure of the wound.

The first and last of these stages may be done under novocain and the second under general anesthesia. Thus the period of sleep should not continue longer than twenty or thirty minutes. I have employed this method in my later cases with very satisfactory results. The superficial cervical plexus is blocked on both sides, the skin is infiltrated along the line of incision, and a few deep injections are made laterally on both sides of the larynx, trachea and thyrohyoid membrane. A 2 per cent. novocain-suprarenin solution is used and from five to ten minutes allowed for its full effect. Morphin alone is employed as a sporific one hour prior to the beginning of the operation.

The operation here detailed for hemilaryngectomy is my own. Its radical departure from the accepted method of Gluck makes me put it forward with some hesitation. It has been done in six cases with six surgical recoveries. The operation for total laryngectomy is essentially the accepted method of the one-stage operation with some modifications in technic and in the after-treatment. In total laryngectomy I prefer the one-stage operation for various reasons. When a preliminary tracheotomy is done and the trachea surrounded with gauze to establish peritracheal adhesions, the object aimed at is the prevention of extension of infection to the mediastinum. This possible good, in my opinion, is outbalanced by the fact that at the second stage we are forced to operate in a well established septic field. Another objection is that a primary union between the skin and tracheal mucous membrane is seldom possible when the trachea has been mutilated and the surrounding tissues infected. A clean union here means that the patient may eventually dispense with the tracheal cannula. To wall off the trachea at the first stage and to leave it closed would be a more logical procedure in the two-stage operation.

When the arytenoid on one side is involved, a total extirpation of the larynx is the safer procedure. Indeed, the removal of the neck tissues on the involved side should be seriously considered if the disease extends to the posterior part of the arytenoid, since then it is quite possible that the lymphatics have carried the cancer cells beyond the larynx. In several cases, I have removed the anterior portion of the esophagus where it lies in juxtaposition to the larynx, and for one third of its caliber, without impairment of its function.

Primary union is the exception in total laryngectomy. The wound infection in all my cases began above at the pharyngeal closure, manifesting itself between the second or fourth days. Liberal opening with drainage prevents or retards its spreading downward to the danger zone behind the tracheal stump. This retardation is an important factor in the prevention of mediastinal infection, giving the retrotracheal region time to become walled off. Wound infection with sloughing may not, after all, be an unmitigated evil, since it may, by the eradication of disseminated cancer cells tend to retard or prevent recurrence. I believe it has done so in two of my cases.

Prior to the operation every endeavor should be made to put the mouth into as clean a condition as possible by the extraction and treatment of diseased teeth.

I would lay stress on the following points in the management of the operation and of the after-treatment:

1. The technic should be so planned as to prevent the entrance of blood into the trachea. The hemostasis employed in other surgical work is not sufficient in this operation. Before the trachea is opened, an absolutely dry wound is imperative. When the trachea is cut across, all small bleeding points must be secured at once, and a snug fitting tracheal tube must be at hand for immediate insertion. If blood escapes into the trachea, it should be sucked out by negative pressure before it has time to pass the bifurcation.

2. Wound contamination from the open trachea and pharynx should be minimized by quickly closing the former with the breathing tube and by plugging the latter with a piece of gauze large enough to fill the pharynx and mouth.

3. Drainage wicks should be placed in two danger zones, namely, under the pharyngeal closure and behind the tracheal stump. The latter drain lies across the direct pathway of mediastinal infection.

4. A properly balanced diet is given from the start. This is accomplished by the use of a feeding tube introduced through the nose into the esophagus during the operation and left in place as long as required.

5. Strict attention must be given to drainage when infection occurs. Suction does much here to cleanse the wound of pus and tenacious mouth secretions.

6. The absence of lung complications in my cases was partly due, in my opinion, to the use of intertracheal suction, applied through a catheter, introduced as far down as the bifurcation and, at times, below. This catheter is used, as indicated by the amount of tracheal secretion, at least from two to four hours for a few days following the operation. Two physiologic principles underlie the expulsion of secretions from the trachea, namely, normal ciliary action and normal cough. By normal cough I mean the compression of air behind the closed glottis and its expulsion by a sudden release of this closure. In the open trachea normal cough is impossible, and, following operative traumatism, the ciliary action of the tracheal mucous membrane is, at least temporarily, in abeyance. Hence there is a tendency for tracheal secretions, much increased after laryngectomy, to enter the lungs, producing well known consequences.

7. If it cannot be decided whether a hemilaryngectomy or a total laryngectomy is indicated, the larynx should be split and

* Read before the Section on Laryngology, Otology and Rhinology at the Sixty-Eighth Annual Session of the American Medical Association, New York, June, 1917.

its interior carefully inspected. If still in doubt, I would strongly advocate the more radical procedure.

It may be stated as an axiom that the surgeon is given but one opportunity to eradicate cancer wherever found.

When, owing to the extent of the disease, a block dissection of the neck is indicated, the procedure is as follows: An incision from the chin to the sternal notch is made, including all the tissues down to the deep fascia. From the upper end, extending laterally on one or both sides, a second incision is carried outward across the sternomastoid muscle just under the mastoid process. The third incision begins at the lower end of the first one and is carried outward and downward, crossing the clavicle near its outer third. The object of this technic is to make the flap as wide at its base and as thick as possible. My experience with the rectangular flap generally used has been that the inner edge is prone to slough from lack of nutrition. Much time is often wasted in trying to save the sternomastoid muscle. It is my custom to remove it entirely, thus gaining an immediate and good exposure of the deep structures of the neck. It may be detached below and with it all the underlying gland and lymphatic bearing tissues removed *en masse*.

OPERATION FOR HEMILARYNGECTOMY

Through a short incision a very low tracheotomy is done. To insure against asphyxia from cannula displacement, the edges of the opening into the trachea are transfixed by two traction sutures. These are laid one on each side of the neck. Traction on them opens the slit in the trachea. In low tracheotomy, cannula displacement may be troublesome if not dangerous, as the depth of the wound and the postoperative edema may make it almost impossible to find the opening in the trachea. The anesthetic is given through a tube inserted through the tracheal cannula.

A second incision, beginning under the chin, in the median line, and extending down to just below the cricoid cartilage, exposes the thyroid and cricoid cartilages and the thyrohyoid membrane. A bridge of tissue about 1 inch wide is left between this and the tracheotomy incision. All of the tissues attached to the diseased side of the larynx are dissected away in one flap, care being taken not to injure the under surface lying in juxtaposition to the thyroid cartilage. When turned out, this flap should have a smooth fascial lining which later is to form the lateral wall of the new larynx. The cricoid and thyroid cartilages are cut through longitudinally in the center line; the thyrohyoid membrane and trachea are slit anteroposteriorly on the diseased side. The loosened half of the larynx is retracted well away from the healthy side, exposing the interior of the larynx. Cocain and epinephrin are applied to the larynx and trachea as far down as the cannula. The trachea is packed with gauze, and, through the now open hypopharynx, a large piece of gauze is forced into the pharynx and mouth, thus walling off the operative field at both ends. If the mucous membrane covering the posterior commissure and arytenoid is healthy, it is saved and carefully dissected away from the cartilage. This dissection is carried backward over the posterior surface of the arytenoid and downward to the point at which it becomes continuous with the anterior aspect of the mouth of the esophagus. The diseased half of the larynx is removed, being careful to preserve the flap outlined in the foregoing, which remains attached to the anterior edge of the esophageal mouth. All bleeding points are controlled by catching only the vessels and by tying with iodized catgut. Stress should be laid on careful and nontraumatic hemostasis. I will digress at this point to state that rough handling of tissues, so frequently seen in general surgery, is out of place in this operation. In the ultimate result, much depends on gentleness.

The next step in the operation is to endeavor to cover with mucous membrane as much as possible of the raw surface left by the hemilaryngectomy. For this purpose the flap mentioned previously is brought downward and forward. It may sometimes be further enlarged by splitting the mouth of the esophagus. A considerable part of the raw surface left by the removal of half of the larynx may thus be covered. Stitches of fine iodized gut are placed so as to hold the flap in its new position, care being taken that tension is avoided. The tracheal packing is now removed and the trachea cleared of blood clot down to the cannula. A long ¾ inch, folded, strip of petrolatumed gauze, thoroughly impregnated with bismuth, is packed into the trachea, filling it from the cannula to its open end. This strip should be folded back and forth in the trachea, so that its removal may be more easily accomplished, and it should be packed in tight and even. To prevent the lower end of the gauze from falling into the trachea and to facilitate tight packing, a drawing string is run through the gauze and attached to its lower end. When the packing is in place, this string is drawn up, thus approximating the two ends of the gauze. The trachea is thus corked from the secretions and drainage from above. The end of the strip is brought out at the lower end of the laryngeal incision. The larynx is packed loosely with a strip of iodoform gauze, the end of which is brought out at the same point as the tracheal packing. The gauze in the pharynx is removed from the mouth, and the feeding tube is inserted through the nose and directed into the esophagus.

CLOSURE

The mesial edge of the pretracheal muscles (the undersurface of the lateral flap) is now united to the mucous membrane of the healthy side of the larynx, along its anterior median aspect, fine iodized gut being used. The skin edges are united with silkworm gut. The wound is left open at its lower angle, wide enough to give drainage room for the gauze end. Two provisional stitches are placed here to be tied after these strips are removed, thus entirely closing the larynx. A sheet of rubber tissue, covered on both sides with gauze, is glued with collodion by its lower edge to the neck, across the bridge of skin separating the two wounds. This attachment should extend laterally half way around the neck. Its object is to act as a barrier between the laryngeal wound and the tracheal cannula, keeping the drainage of the one away from the other. The quantity of drainage coming from the laryngeal wound saturates several pads of gauze a day and makes one feel that, if only a fraction of this fluid should find its way into the lung through an open trachea, pneumonia might well be the result. The bismuth in the tracheal plug keeps it clean and odorless for days, and with the petrolatum effectually turns the drainage out toward the surface.

When the laryngeal drain should be removed depends on the amount of drainage. It should be kept in place as long as the serous flow continues. In my

limited observation, this flow lasts from two to four days. I remove the tracheal plug later for the reason that the blood and serum which flow into the larynx when disturbed by the drainage removal is thus prevented from entering the trachea. The tracheal plug may remain from three to five days. The tracheal cannula should be removed just as soon as the new larynx is open for comfortable breathing. If there is much tracheal secretion, tracheal drainage is best served by keeping the cannula in position and using suction.

OPERATION FOR TOTAL LARYNGECTOMY

At the cancer age, clean mouths are the exception. Carious teeth and pyorrhea alveolaris make this cavity a veritable cesspool into which our operative field must extend, and out of which must come almost unavoidable infection. Before operation, this condition should be remedied as far as time will allow. Chronic sinusitis must be endured, since it would be quite impossible to correct it in the time given. Any effort in this direction would but change a chronic into an acute process with added risk of wound contamination.

If the patient will consent, the preliminary part of the operation may be done under local anesthesia, carried as far as the tolerance of the patient and the skill of the operator permit. When the larynx is filled with carcinoma and the breathing is obstructed, local anesthesia obviates the danger of suffocation and of an emergency tracheotomy during the early stage of the operation. Such a tracheotomy would mutilate the tracheal stump, making the subsequent skin and tracheal union defective. It is quite possible to skeletonize the larynx and upper portion of the trachea without pain. At this point it is better to begin the general anesthesia rather than attempt the removal of the larynx by the local method, since gagging, vomiting and coughing hinder the surgical procedure and add another infective factor.

If morphin has been given, great care in the administration of the general anesthetic must be taken to guard against respiratory failure. I am inclined to use as little as possible such noisy adjuncts as the insufflation anesthesia apparatus, which interfere with the close observation of the patient's respiration. The removal of the larynx and closing of the pharynx is done under light ether anesthesia. The remaining steps of the operation are better done under local anesthesia, with an occasional whiff of ether if needed.

The incision extends from the chin to the sternal notch in the median line of the neck. From its upper end two incisions are carried laterally for about 1 inch. This wide opening on top gives better access in the work of closing the hypopharynx. In patients with long thin necks the operator may dispense with the lateral incisions. The thyroid bridge is tied and cut. In three cases I have been obliged to remove a portion of the thyroid gland overlying the trachea. The larynx and trachea are skeletonized and the thyroid membrane exposed. The greater wings of the thyroid cartilage are cut and left in position. All vessels are tied and the wound made perfectly dry. The trachea is cut across just below the cricoid cartilage, care being taken to secure all bleeding points so that no blood enters the trachea. A rubber tube 10 inches long and large enough to fit tightly is inserted into the trachea. Through this tube the anesthesia is continued. The cleavage plane between the larynx and esophagus is now found and the larynx separated upward as far as is compatible with the extent of the growth. If the cancer extends backward into the esophageal mouth, that portion of the latter lying in juxtaposition to the larynx must be removed. The larynx is now allowed to drop back into position and the thyrohyoid membrane is cut across, opening the hypopharynx—a large piece of gauze, either of iodoform or wrung out of a 1 per cent. neutral solution of chlorinated soda, is crowded into the pharynx, filling it and the mouth. The larynx is removed, either taking or leaving the epiglottis. The hypopharynx is closed with two lines of fine chromic gut sutures. Before the first line is entirely closed the gauze is removed from the mouth and a feeding tube of suitable sized rubber is passed through the nose and guided into the esophagus to a depth of 5 or 6 inches. I have seen persistent vomiting caused by inserting the tube too far. Two lines of drainage are indicated—one just below the hypopharyngeal closure and the other behind the tracheal stump. The drains may be inserted through stab wounds in the flaps. If a gland dissection has been done, a third drain is placed in the lower, outer angle of the wound. The wound is then closed in layers with No. 2, iodized gut, or it may be closed *en masse* with silver wires piercing the tissues deeply and clamped with large shot.

The tracheal stump is pulled forward and two or three retention sutures of silkworm gut or silver wire are passed around the third or fourth ring with a sharply curved stout needle. The ends of these sutures are plunged through the tissues and brought out about 1 inch from the central incision on either side and below the trachea. They are tied around pieces of gauze, sufficient tension being exerted to hold the stump forward. A cuff of mucous membrane is made at the tracheal end by removing the cartilage of the first ring. The subcutaneous fat is removed from the skin in the immediate vicinity of the stump, to facilitate bringing the skin and mucous membrane together. Union is made with horse hair on the front and sides of the stump, and with silkworm gut behind. Tension due to a sagging trachea must be avoided in joining the skin and mucous membrane. A large cannula wound with iodoform gauze and smeared with petrolatum is inserted into the trachea, fitting its caliber snugly. An 8 inch square of rubber dam perforated in the centers is snapped over the exposed end of the inner tube of the cannula. Behind this apron the wound is dressed in the usual way. The cannula inserted as above described effectively corks the trachea, preventing secretions from being coughed up over the tracheal skin union. The rubber apron catches the tracheal secretions and serves as a barrier between the end of the cannula and the wound in the neck.

AFTER-TREATMENT

Of paramount importance in these cases is a liberal and supporting diet. Without the use of the esophageal tube it is impossible to give enough food to support those patients through the important days of convalescence. The diet I prescribe is: oatmeal thoroughly cooked and strained, mixed with milk. To this may be added lactose and raw eggs, and occasionally melted butter. Six ounces of this thick mixture are forced through the tube with a piston syringe every four to six hours, followed by 4 ounces of water. Fruit and vegetable juices are later added. The esophageal tube may be retained for weeks without injury, providing it is washed out after each feeding

as previously mentioned. Rectal feeding, in my opinion, should not be relied on. It is merely an effective way of pretending to do something.

In some cases, tracheal and bronchial secretions are much increased. In one patient, a diabetic, crusts and plugs of inspissated mucous formed in the trachea and primary bronchi and had to be removed with bronchoscope and forceps twice a day to obviate suffocation. A negative pressure pump is used to unload the trachea as often as indicated. Strong suction may do much injury to the mucous membrane, and should be avoided.

As wound infection is the rule in total laryngectomy, its proper surgical management is, perhaps, the most difficult and most important part of our task. Infection begins, as a rule, at the hypopharyngeal closure. To delay too long in opening the upper part of the wound is a fatal error, since the virulence here encountered is high and spreads rapidly. After the wound is opened, the packing should be changed every two to four hours and the field cleared of secretions by suction. The continuous or intermittent use of hypertonic salt solution or neutral solution of chlorinated soda (0.5 per cent.) does much to promote exosmosis and thin the discharges. If the infection extends to the tracheal region, constant attention on the part of the surgeon and nurses is required to prevent the inhalation of pus and septic extension along the trachea to the mediastinum. All burrowing pockets are carefully followed, frequently packed and cleansed by suction. At no other point in the body is uncontrolled infection more serious than in the neck.

Such success as has been attained in my work has been, I believe, due to the time and pains taken in the after-treatment, to the use of little general anesthesia, and to a constant effort toward the elimination of traumatism from the operative technic.

REPORT OF CASES

CASE 1.—M. W., woman, aged 56, in whom a cancer completely filled the larynx, was operated on (tracheotomy) two months prior to entering the hospital. There was a severe cough and the operation—total laryngectomy with resection of the glands on both sides of the neck—was done, December, 1914, for the purpose of relieving her suffering without any hope of cure. The anterior wall of the esophagus was removed with larynx. There was an infection in the wound above the tracheal union with the skin. Primary union of trachea and skin occurred and the wound closed by plastic operation eight weeks after operation. Eighteen months later there was no recurrence, the patient could whisper distinctly and her weight had increased 40 pounds. No tracheal tube was needed. Twenty-two months later there was a recurrence of the disease, causing the death of the patient, June, 1917.

CASE 2.—W. O. L., man, aged 52, farmer, had a cancer which involved the right cord to the arytenoid cartilage and, crossing the anterior commissure, extended over the anterior third of the left cord. In July, 1915, total laryngectomy was performed with resection of the gland-bearing tissue on both sides. Patient had cardiovascular disease with blood pressure of 210. Extensive suppuration in the wound followed but the tracheal union with the skin held and ten weeks later a plastic operation was done with good result. There has been no recurrence, no tracheal cannula worn, patient can whisper fairly distinctly and can be understood by members of the family.

CASE 3.—C. B., a woman, aged 52, was operated on—total laryngectomy—in January, 1916, for cancer involving one cord, but with free arytenoid. The gland-bearing tissue was not resected. The patient left the hospital in six weeks with closed wound and one month later returned with a fistula on which a plastic operation was done with good result. Patient made no effort to speak and she died in July, 1916, of nephritis.

CASE 4.—O. E., a man, aged 46, is a mechanic, physically large and powerful and in splendid general health. The larynx was so filled with cancer that tracheotomy was done to prevent asphyxia. The cancer had extended to the neck on the right side. Total laryngectomy and block dissection of the neck on both sides was performed, October, 1915, and 1 inch on the anterior wall of the esophagus was removed with the larynx. Infection and extensive suppuration occurred in the wound. The trachea and skin held, but six weeks after the operation the pharynx was wide open, the esophageal mouth was just above the tracheal opening and food was given through the open esophagus in the neck. Two weeks later a plastic operation was done and after ten days the patient was taking solid food by mouth. Present condition: The patient has gained 20 pounds in weight, has had no recurrence, and is working as an automobile mechanic, wearing the tube only while at work. He has a remarkable whisper which any one can understand at short range, and there has been no recurrence to date, June 17, 1917.

CASE 5.—D. S., man, aged 64, merchant, had a cancer which involved the right cord and extended well over the arytenoid to the esophageal mouth and was rapidly growing. An operation was performed, June, 1912—total laryngectomy with gland-bearing tissue. One gland was found enlarged and malignant, but good recovery ensued and the wound closed in five weeks. There was a recurrence in the neck, September, 1912, and the patient died in January, 1913.

CASE 6.—J. B., man, aged 49, plumber, who was addicted to alcoholic excesses, had a cancer of the left cord, arytenoid and anterior end of the right cord. After three weeks' treatment and abstention from alcohol, an operation was performed, October, 1912. A total laryngectomy was done, but the glands were not resected because of the weakened condition of the patient. Primary union took place and the patient returned to work in six weeks. He did not report for observation, but I learned by letter that he relapsed into his old alcoholic habits and died eight months later from cancer of the neck.

CASE 7.—T. V., man, aged 56, mechanic, had a cancer of the larynx involving the anterior half of the larynx on both sides. Total laryngectomy was done, January, 1914, but gland-bearing tissues were not resected. Good recovery followed with spontaneous closure of the wound after considerable suppuration. One year later the cancer reappeared in the old scar and operation was advised, but the patient disappeared. I learned through a friend that he died six months later of cancer of the neck.

CASE 8.—S. M., man, aged 49, clerk, was a syphilitic and had hoarseness for one year which was probably specific in nature. When first examined a chronic laryngitis was present with a well circumscribed cauliflower mass forward of the right posterior commissure and a piece removed and examined microscopically proved the growth to be malignant. September, 1914, total laryngectomy was performed, but the gland-bearing tissue was not removed. Eight months later the glands in the right side of the neck became enlarged. A block dissection was done and the glands proved to be non-malignant. At present there is advanced cardiovascular disease with myocardial degeneration, but no recurrence of the cancer in the neck or throat and the patient does not find it necessary to wear the tube. This patient will probably die before the time limit for nonrecurrence is reached. In June, 1917, the patient was still living, his general physical condition was the same and no recurrence of the growth had appeared.

CASE 9.—P. R., was operated on, July, 1916, and the larynx and esophagus removed just above the level of sternum for cancer which involved both. Recovery occurred after considerable sloughing and with the help of a plastic operation two and a half months later. The patient's condition improved, there was a gain in weight with entire disappearance of the pain in neck and temporal regions of head (cancer of esophagus frequently produces pain in the temporal and mastoid regions). Patient was under observation until April, 1917, and no recurrence had taken place up to that time. Since then

I have learned that the patient died, but could not ascertain the cause of death. This patient was too far advanced to hope for no recurrence.

CASE 10.—J. B., man, aged 46, clerk, had a cancer of the right cord involving the arytenoid. A total laryngectomy was done, November, 1916, also a block removal of the tissues on the same side. The wound eventually closed without a plastic operation and no recurrence had taken place up to June, 1917.

CASE 11.—S., man, aged 52, watchman, had a cancer of the larynx involving both sides and encroaching on the anterior part of both arytenoids. On account of sugar and epithelial and granular casts in the urine, operation was at first deemed unwise, but later under treatment by Dr. James Dwyer, the sugar disappeared from the urine and the kidney condition seemed improved. The patient was a large, strong and seemingly healthy man, and urged that the operation be performed. It was undertaken in December, 1916, very little general anesthesia being used. The immediate recovery from the operation was uneventful, but the tracheal secretions were dry and troublesome and on several occasions it was necessary to enter the trachea and primary bronchi with a bronchoscope and remove the accumulated scales in order to prevent suffocation. The wound sloughed extensively, but at the end of second week began to granulate. An ischiorectal abscess developed at the beginning of the third week, the surrounding tissues became gangrenous, and the patient died of sepsis at the end of the third week.

CASE 12.—U., man, aged 54, for about a year had a cancer of the larynx involving both sides and arytenoids. Breathing was obstructed and he had lost about 25 pounds in weight and was in a weakened physical condition. A total laryngectomy with removal of the anterior portion of the esophagus was done, January, 1917. Patient had a serious time during operation from respiratory failure, and every effort to restore breathing failed, until it occurred to me to distend the lungs forcibly with air. Air was forced into the lungs through the open trachea almost to the point of rupture, then suddenly released, and this powerful stimulus at once restored breathing. On account of the feeble condition of the patient, a block dissection of the neck was not done. After a plastic operation, complete recovery followed and no recurrence has taken place to date, June, 1917.

CASE 13.—T. V., man, aged 60, for six months had a slowly growing, nonulcerating cancer of the larynx involving the right side and extending across the anterior commissure. There was cardiovascular degeneration with a blood pressure of 180 and a few granular casts and albumin in the urine. Complete laryngectomy was performed, October, 1916. A troublesome acidosis occurred which lasted a few days, also some infection in the upper part of the wound. The wound closed spontaneously at the end of the third week and no recurrence had appeared to June, 1917.

CASE 14.—J. L. D., man, aged 60, had had symptoms for four months. On examination, a very small carcinoma was found in the anterior commissure of the larynx involving one fourth of the right cord and one eighth of the left cord. Hemilaryngectomy was done, July, 1913, and the upper rim of the right thyroid cartilage and a flap of mucous membrane from the right arytenoid were retained. The remainder of the right side of the larynx and a liberal notch from the anterior part of the left side were excised. On the second day the patient became very drowsy and the temperature reached 102 F. On the third day the packing was removed; the patient was up on the fifth day and on the seventh day the tracheal tube was withdrawn. The condition, as described by letter, June, 1917, was: breathing not obstructed, speaks in a loud whisper and not easily fatigued, no cough, no recurrence.

CASE 15.—J. C., woman, aged 46, had symptoms for eight months. The carcinoma involved the left cord and part of arytenoid, had grown slowly and spread out well above and below the cord. Hemilaryngectomy was done, September, 1911, and no mucous flap was obtainable in this case, since resection included the mucosa well down on the mouth of the esophagus. The resection was carried beyond the middle line behind in the arytenoid region. The temperature varied between 100 and 104 F. until the fifth day, and considerable local reaction appeared. The packing in the larynx was removed on the third day and the packing in the trachea on the fifth day. The tracheal tube was withdrawn on the twentieth day, but the feeding catheter was left in place for three weeks. Six weeks later a careful resection of gland-bearing tissue of neck was done on account of some palpable glands, which proved to be benign. In December, 1915, the voice was a loud whisper, the opening in the larynx looked small but was sufficient for breathing, and there had been no recurrence. Granulation tissue gave some trouble in this case, but was removed under suspension and cauterized with pure silver nitrate. Recurrence of the cancer appeared in 1916 and the patient died. In the light of present experience, I should have performed a total laryngectomy on this patient.

CASE 16.—M. G., man, aged 60, gave a syphilitic history and had had hoarseness for one year. The Wassermann test was positive. A mass the size of bean was present on the left cord and extended upward along the lateral wall of the larynx. Six weeks' treatment for syphilis was given with no result and a piece of the growth which was removed, proved to be carcinomatous. Hemilaryngectomy was done, January, 1912, although a thyrotomy was contemplated. The mass so involved the cartilage beneath, that the procedure was changed to a hemilaryngectomy. The packing in the larynx was removed on the second day, the tracheal packing on the fourth day and the cannula was withdrawn on the seventeenth day. The esophageal tube was kept in place for twenty days. Prior to operation the patient had a chronic bronchitis and the secretion from the lung became much increased, necessitating the use of suction through the tracheal cannula every hour, day and night, for five days after the operation. This procedure, I am quite sure, saved the man's life. In June, 1917, the voice was remarkably good (hoarse but sonorous), chronic bronchitis caused some annoyance, there were attacks of soreness in the larynx due, no doubt, to the excessive secretion from below, and to the cough. There has been no recurrence.

CASE 17.—M. S., man, aged 53, had had chronic laryngitis for years with hoarseness increasing for four months. There was a peculiar brawny induration of the right side of the larynx, without well defined limitations. The patient was observed for one month and as the center of the mass was increasing an operation was determined on. A total laryngectomy was advised, but the patient refused, stating that he would prefer death to absence of voice. Hemilaryngectomy was done, June, 1913, with subsequent resection of the glands of the neck on the same side. The patient was somewhat irrational on the second day and pulled the catheter out of the esophagus and, as repeated attempts to replace it failed, a gastrotomy was immediately performed under novocain and a little chloroform. Tracheal suction was used every hour, day and night, for three days, to unload excessive secretion. The laryngeal packing was removed on the third day, the tracheal packing on the fifth day and the cannula was withdrawn on the fourteenth day. There was a rise in temperature and prostration for one week, recovery eventually occurring. In June, 1915, the voice was hoarse but strong. At the last examination I found a suspicious nodule in the neck and a thickening on the operated side on suspension, which I feared was a recurrence. The nodule proved to be a recurrence, causing death five months later.

CASE 18.—D. G., man, aged 48, complained of hoarseness for five months and stated that ten years previous he had had a papilloma removed from the larynx, but could not remember from which side. The mass was involving two thirds of the cord, leaving the ends free. Thyrotomy was attempted but the mass was firmly adherent to the lateral wall of the thyroid. Hemilaryngectomy was done, June, 1913, which was followed by an uneventful recovery. The packing in larynx was removed on the third day and the tracheal packing on the fourth day. Considerable edema in the larynx necessitated keeping the tracheal cannula in position for three weeks and the feeding tube was withdrawn on the twentieth day. Patient has a remarkably good sonorous voice when effort is made, but he generally speaks in a loud whisper. At the latest report, June, 1915, no recurrence had taken place.

Case 19.—R. C., woman, aged 58, for years had a large goiter with tracheal and laryngeal distortion and also had cough and hoarseness, due to a left partial laryngoplegia. The hoarseness and cough had been increasing for several months, and the examination revealed a complete obliteration of the true and false cord by a well circumscribed fungating mass. Microscopic examination showed positive signs of carcinoma. Hemilaryngectomy and hemithyroidectomy were performed, July, 1914. In this case I was forced to modify the procedure and I removed half of the thyroid through a transverse incision on a line below the bridge of the thyroid. The trachea was then opened as low as possible and the tracheal tube inserted through a buttonhole in the lower flap. The pretracheal muscles could not be used for the laryngeal wall, as they had become attenuated from stretching over the enlarged thyroid; consequently, they were carefully removed, exposing the deep cervical fascia. This flap was used to form the new laryngeal wall on the ablated side, and as it was redundant, being composed of skin, superficial and deep fascia, and some fat, it was trimmed down. Its anterior edge was carefully united to the mucosa of the larynx and to the skin in the anterior median line, and also to the exposed half stump of the trachea below. The endeavor was to close off the larynx and trachea from the neck wound, with the hope that the infection, which was certain to come, might be kept outside the larynx. The rest of the wound was left open and packed with a 0.5 per cent. iodoform gauze. Infection occurred from the trachea and spoiled the union between the trachea and the flap, but did not seriously affect the median union. Healing required one month, the tracheal tube being worn for one month and the feeding tube for twenty-six days. Condition, July, 1916, was as follows: voice a loud whisper, considerable tracheal contraction below larynx, causing some discomfort, normal breathing is audible a few feet from the patient on account of this stricture. There had been no recurrence to July, 1916.

Note.—Report has just been received that the patient died of cancer of the neck, January, 1917.

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ABSTRACT OF DISCUSSION

Dr. D. Crosby Greene, Boston: In these days the tendency is, in early operable cases in carcinoma of the larynx, for many physicians to encourage their patients to try radium treatment where operative treatment may give reasonable hope of a cure. There have been some cases of apparent cure by radium. Up to date, however, the results of radium treatment have not been as successful as the operative treatment in early cases. I, therefore, think it is of great importance that the operative technic of the surgery of the larynx should be developed, as it has been by Dr. MacKenty. Cancer of the larynx presents one of the most serious problems with which we have to deal, but it is one in which relief may be afforded by operation in many cases in which cure is not obtained. The argument is made sometimes that total laryngectomy and hemilaryngectomy leave the patient in worse condition after operation than before, and I think that was true in the early stages of the surgical treatment of this disease; but if we use such a technic as Dr. MacKenty has presented, it seems to me there is nothing lost and there is possibility of great gain in all except those cases which are obviously inoperable. I have not done anything comparable to what Dr. MacKenty has in this line. My work has been largely with earlier cases, and I have performed partial laryngectomy in a number of cases involving a much less radical operation. But I think the essential points in his operation apply not only to operations of the more radical, but to those of the less radical type.

I have found that there is great advantage to be obtained by posture after operation, if we take advantage of what we know of the anatomy of the trachea, referring especially to the backward inclination of the trachea below the larynx. With the patient in the dorsal position, the natural tendency is for fluids in the trachea to gravitate backward into the chest. If we reverse this position and place the patient face downward with a pillow under the chest, the patient can be made comfortable and drainage from the trachea will be much facilitated. By this procedure I have had absolutely no difficulty with chest complications.

I would request Dr. MacKenty to make a little more clear just how he segregates the trachea from the larynx during the operation.

Dr. Henry W. Horn, San Francisco: At the International Congress of Surgeons in London, in 1914, there was an interesting discussion on the value of hemilaryngectomy, and the consensus of opinion seemed to be that the limitations for this operation were very well marked indeed. Now, the fact that Dr. MacKenty is unable to determine whether a hemilaryngectomy should be performed or not is pretty good indication to my mind that if hemilaryngectomy should be performed it should be easily diagnosed before the operation, because, although in this paper Dr. MacKenty has not quoted any statistics on the subject, it seems to me if any doubt whatever existed from the examination preliminary to the operation as to the necessity of hemilaryngectomy or total laryngectomy, the physician would be decidedly in favor of a radical operation.

Another point is the term which Dr. MacKenty applied to operation on these patients by local anesthesia, which he called "brutality." Now I differ most decidedly on that point. The total extirpation of the larynx by means of a local anesthetic can be accomplished without any brutality, and in certain cases is distinctly indicated. Block dissection can be carried on and the whole larynx can be extirpated by the Gluck method under local anesthesia, and in a case I have in mind we used nitrous oxid anesthesia for not over fifteen to twenty seconds just at the end of the operation to separate the larynx from the pharynx. The more or less complicated details which Dr. MacKenty has gone into prove to my mind that he very much fears complications, and, as a matter of fact, complications are to be feared. I think that those who have worked with Professor Gluck know that his bugbear was operations, and naturally, when one returns after such an experience, one contrasts the method in America, and I know men who have operated by the Crile method with a preliminary blocking of the neck or a preliminary tracheotomy who have found the operations much more difficult. There are innumerable details which I would take exception to, not as a personal matter, but as a student and admirer of Professor Gluck.

Dr. Joseph C. Beck, Chicago: As to doing the operation under a local anesthetic, I do not believe the statement should be made as broad as Dr. MacKenty has made it. I have operated by this method and I saw no evidence on the patient's face or on the faces of those who looked on that the operation was brutal. I anesthetize the posterior surface of the larynx by inserting a flexible bougie, using gauze wet with a strong solution of cocain, and leaving it there during the entire operation. That anesthetizes the posterior portion completely. Then, of course, I use morphin in good sized doses (and that is a general anesthetic) without resorting to ether or gas. Of course, we will make use of nitrous oxid if necessary.

Another point was in reference to hemilaryngectomy or complete laryngectomy. I should like to know in what way Dr. MacKenty can assure himself that the excision of the half larynx in the case of cancer will insure a cure. When I make a positive diagnosis of cancer of the larynx I urge a total laryngectomy. My experience (which follows Dr. MacKenty's description of hemilaryngectomy, although his results are far superior to anything I have heard of) with that operation is that I have the recurrences just the same. Are there any patients living after these hemilaryngectomies, not one or two years, but some length of time? We should expect the patient to be cured of carcinoma following laryngectomy when the process is confined to the larynx.

Another point referred to, is the closure of the fistula. The voice is the thing the people object to losing, and if we can leave an opening in the pharyngeal region, if we can give them a whispering voice through the trachea into the pharynx, and use an artificial larynx, such as I have

described, it is a long way in advance of the ordinary methods.

DR. LAFAYETTE PAGE, Indianapolis: At the last meeting of the Indiana State Medical Association I reported fourteen cases of laryngectomy for cancer of the larynx, including five thyroidectomies, five hemilaryngectomies and four complete laryngectomies. Since then I performed one complete laryngectomy, about ten days prior to this meeting. The results in the majority of my cases have been most encouraging. [Photographs were presented.] As to the anesthetic, which is most important, after using most of the anesthetics which have been suggested I have found scopolamin and morphin with chloroform the most satisfactory. In some cases novocain with scopolamin and morphin were used with excellent results.

After the larynx has been stripped and the trachea severed, the Trendelenberg-Rose position is used to prevent the flow or aspiration of blood or mucus into the lungs. The suction apparatus is often of use in keeping the field clear. In none of my cases have I performed a preliminary tracheotomy, although Dr. Crile has presented good reasons for the procedure. The only objection that occurs to me is the liability to cancer infection of the cut surface in a preliminary operation.

As to the value of hemilaryngectomy as compared with the complete, I am thoroughly convinced that there is a certain percentage of cases in which the disease is completely localized for a long time on one side of the larynx, with a low degree of virulence, in which hemilaryngectomy is infinitely to be preferred. I have had two cases of this type and the patients are in excellent condition, one after ten years and one after thirteen years, with two others who have just as promising an outlook. We can never be sure, from a laryngoscopic examination, how extensive is the growth. Before determining positively if a hemilaryngectomy is indicated, the larynx is partially stripped and split and the interior thoroughly examined. My technic is somewhat different from that described by the essayist. After the median incision the tissues are pushed aside; after elevating the perichondrium, the poles of the thyroid are ligated and cut between the ligatures. In pushing the tissues aside the risk of injuring the nerves and large vessels as well as the esophagus is greatly lessened. In complete laryngectomy, after anchoring the end of the trachea, I turn the skin in and line the end with a dermal covering instead of mucous membrane. The esophagus is well anchored to the subcutaneous tissue to avoid infiltration and fistulas.

DR. JOHN E. MACKENTY, New York: The chest position after larynx operations seems to me logical and was first brought to my attention this winter by Dr. Greene. Dr. Greene wished to know how to segregate the trachea during the operation. In hemilaryngectomy the trachea is segregated by packing it with gauze during the operation. The cannula is inserted at the point where the trachea emerges from the chest and the lumen of the trachea above is filled with gauze. In a total laryngectomy we safeguard it by having a series of rubber tubes which fit the open trachea almost as tightly as a cork fits a bottle. A suitable sized one is inserted into the trachea just as soon as possible after the separation of the trachea from the larynx. Before opening the trachea thorough hemostasis must be secured. A suction pump is at hand for use in case the blood should escape into the trachea.

I agree with Dr. Horn when he says that a hemilaryngectomy is seldom indicated. There are, however, cases in which hemilaryngectomy is indicated. The patient sometimes governs the choice; some absolutely refusing a total laryngectomy and preferring death to a voiceless existence. I have seen no total laryngectomy with block dissection of the neck without pain. I have often heard surgeons assert that such extensive operations can be made painless, but the patients failed to corroborate the statements when later questioned. I have a strong conviction that the use of a little general anesthesia is less injurious to the patient than the harrowing experience of having his trachea cut and his larynx removed. Such moments in life are best covered by unconsciousness. The free use of strong cocain solutions in the pharynx and esophagus when combined with such a severe operation is far from being devoid of danger. I am glad I have support on the question of the one-stage operation. I have been against the two-stage operation, but a great many good surgeons have been for it. I see no necessity for two when one operation seems to serve the purpose. I have had no mediastinitis. In one case the man died three weeks after the operation of an ischiorectal abscess. As to incising the larynx for inspection, it should be done only in very limited cancers. If the disease is seen from above to cross or even encroach on the median line, no surgeon would be fool enough to open the larynx for inspection, since in such a condition a total laryngectomy must be done.

If there is any question about the method of procedure, the more radical should be adopted. Dr. Beck speaks of the advantages of a fistula for the attachment of a speaking apparatus. It might give considerable trouble, and I fail to see how food and saliva could be prevented from passing through it.

Dr. Page's remarks convince me that he has had considerable experience in this work. I am afraid of scopolamin, after having had some rather narrow escapes with it and morphin combined. I prefer to give enough morphin to produce the desired effect. Chloroform is an excellent anesthetic, but I dislike some of its after-effects, such as persistent vomiting, which in this operation is both distressing and dangerous. I object to stripping the tissue from the whole larynx in hemilaryngectomy, since it reduces the nutrition of the part left behind, increases the danger of infection and predisposes to subsequent cartilage necrosis.

PERSISTENT TREATMENT OF EPILEPSY *

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The late Dr. S. Weir Mitchell, in a presidential address to the American Neurological Association a few years ago, suggesting the inclusion of certain practical subjects on the program, said, "I would like to learn from some of you what you are doing for your epileptics." He was addressing specialists in neurology, many of whom, besides treating their own epileptic patients with skill and care, had enriched the world's knowledge of the subject. But had the question been, What does the average physician do for his epileptic patients? I fear the answer would have to be, "Almost nothing." At any rate, in taking histories of epileptics I have only very rarely found that any line of treatment had been effectually carried out.

This, I am sure, is not because physicians in general are ignorant of the disease or of the kind of treatment generally recommended. It is rather because they do not expect sufficient benefit from treatment to make them undertake it with the care and perseverance that are necessary for even partial success. A prescription for bromid is given, but with no special effort to fit it to the individual patient and with no explanation as to the need of continuing it. The diet is often severely and irrationally restricted. As a result, the patient sooner or later modifies the treatment to suit his convenience or his whims, and then stops it. Attacks return, and nothing has been gained.

* Read before the Section on Nervous and Mental Diseases at the Sixty-Eighth Annual Session of the American Medical Association, New York, June, 1917.

My thesis is that by means of the familiar bromid treatment, with certain not very irksome hygienic precautions, a great reduction in the number of attacks can generally be obtained, and that in a not insignificant proportion of cases the attacks may be prevented for years without deterioration of general health.

For clinical convenience we ought, of course, to distinguish between the epilepsy which is symptomatic of a recognizable organic disease and that which is idiopathic. In pathology, however, I do not believe that the distinction is radical. Any organic disease of the brain from a massive tumor to the smallest recognizable spot of softening or sclerosis may so increase the irritability of the cortex as to cause epileptic attacks. Similar attacks occur in cases in which no organic cause can be demonstrated, and we call them idiopathic. But in idiopathic, as in organic epilepsy, one of the most constant characters is the tendency of the attacks to recur and form a series, so that each one seems to facilitate the occurrence of the next. Even after a long interval of freedom we rightly expect attacks to return, unless something special is done to prevent them. Now this persistent tendency to recurrence suggests an equally persistent underlying cause which is probably organic, as has been well argued by Dr. M. Allen Starr. I do not, therefore, regard idiopathic epilepsy as merely a functional disorder of the brain, such as migraine, probably is, and still less as merely a toxic eclampsia, such as a uremic convulsion is, but as practically like organic epilepsy, in which the lesion is not progressive and is comparatively slight. And as it is beyond our power to remove the underlying cause of the cortical irritability, we do not expect, strictly speaking, to cure epilepsy. Even when an organic cause is known and is apparently removed by treatment, the attacks generally continue, and bromid must be given. This need not discourage us, provided we make the treatment as persistent as the disease, and keep fitting it to the individual patient.

The favorable cases for treatment are those in which the health is otherwise good, the attacks being of the major form only, beginning late rather than early in life, and the total number remaining small. Very frequent minor attacks, together with occasional major attacks, are especially unfavorable, and minor attacks alone are generally worse than major attacks alone.

The first essential to successful treatment is to tell the patient of the tendency to recurrence, even after apparent cure, and of the need of faithful continuous cooperation on his part. Any legitimate encouragement should be given as an incentive, and the word "epilepsy" need not always be used. If only a few attacks have occurred, it may be said that the disease is not epilepsy until the attacks have become habitual, and that this must be prevented. What should be understood and agreed to is that treatment must be extended over many years, perhaps over a lifetime, even though the attacks are arrested. The patient must form the habit of taking his medicine at the regular time, without rebelling or wondering when he can stop, just as he brushes his teeth, or combs his hair. If the treatment is ultimately to be kept up merely as insurance, so much the better. The prescription must be modified from time to time to fit it more exactly to the needs of the patient, but only by the physician, and it is never to be discontinued even for a day except by express order of the physician. Such an order should not be given unless the reason is overwhelming, as in some acute disease in which the bromid would be distinctly harmful. In many cases a discontinuance intended to be for a short time is prolonged, as no bad effect is at first apparent, and then, when least expected, the attack comes and all concerned must start again, much discouraged, at the foot of the hill.

The diet of the epileptic should be generous and varied, but he should learn to moderate his desire for excessive quantities of food. The big holiday dinner is especially dangerous. A written list of articles permitted and prohibited should be given. Those permitted should include the ordinary fresh meats, poultry, fish, eggs, cooked vegetables, cooked fruits, wheat bread, light cakes, tea and coffee.

In the list of prohibited things should be included oatmeal, cornmeal, bran bread, popcorn, hominy, most breakfast porridges, and, in general, the bulky foods that are so much recommended as laxatives. These foods are laxative because they mechanically irritate the intestine and thus indirectly irritate a sensitive skin or a sensitive nervous system. Moreover, they generally contain the wrong kind of protein and a great excess of starch. Nuts are especially harmful, and should be absolutely prohibited. Salt is to be restricted to a small amount; therefore salt meats are to be avoided. Certain raw fruits, especially apples and bananas, are dangerous. Pastry, heavy puddings, very rich dishes and unusual mixtures must be avoided. Alcohol and tobacco are not for the epileptic.

In giving bromid the aim, of course, is to find such a dose, so combined with other remedies, that attacks will be prevented and yet the patient not seriously suffer from its prolonged administration. My average beginning dose for an adult is 20 grains three times a day in a liquid mixture. If that prevents attacks, but bromism appears, the medicine is not interrupted at all, but reduced 10 or 15 per cent. at a time, until a dose that can be tolerated is found. Toleration may be increased by adding about 10 minims of tincture of nux vomica to each dose and also by adding arsenic, preferably as sodium cacodylate, from 0.002 to 0.005 gm. (from $\frac{1}{30}$ to $\frac{1}{12}$ grain). A laxative is often necessary, and the aromatic fluidextract of cascara can be added to serve this purpose. If the amount of bromid is inadequate to restrain attacks, it is to be increased cautiously. When a dose is found which is sufficient and is well tolerated, it is to be continued for a long time and then cautiously reduced. Dropping from three doses a day to two of the same strength is too great a change to make at one time, but one might change from three doses of 20 grains to two of 25 grains.

But here is a matter of detail which may seem too simple and elementary for the attention of this section, but which is so vital and so commonly neglected that it is necessary to emphasize it. The physician must not only know how much bromid by weight he wishes to give the patient but he must know just how much the patient actually gets. Eighteen grains may be too little and 22 grains too much. It not infrequently happens that a ready-made mixture of bromid is prescribed, without memory of its exact strength, with the direction to take a teaspoonful (which may mean anything from half a dram to 2 drams) and so the patient gets a dose somewhere between 5 grains and 40 grains without any certainty as to the exact amount.

Now suppose this dose is not just right and an increase or decrease of 10 per cent. is desirable, how is it to be accomplished? Is it any wonder that bromid gets the reputation of being ineffective, or of being so poisonous that its effects are worse than those of the disease?

The remedy, of course, is simple, that is, for the physician to write the prescription giving the exact amount of each ingredient and then to have the patient measure the dose, which is usually a fluidram, in a small graduate glass, which will measure from 10 to 60 minims exactly. But vigilance is necessary.* It is wonderful how much perversity patient and druggist can show in defeating the plan to have the dose accurately measured.

In case the major attacks are held in check, but the minor ones remain as frequent as before, it will do little or no good to advance to large doses of bromid. Instead, from 5 to 10 minims of tincture of digitalis or half a grain of spartein added to each dose may be of distinct service. Or, if there is much nervous irritability, from 2 to 4 minims of the deodorized tincture of opium with a corresponding increase in the laxative may be better. Occasionally, especially of late years, I have used small doses of thyroid with advantage, and some patients with low blood pressure might profit by the addition of pituitary substance; but I have not tried the latter in this disease. If status epilepticus supervenes, instead of trying to control the convulsions by increasing the amount of bromid, one should keep this at the usual amount and give chloral in 15 grain doses every two hours,* for the first few doses, or even every hour. If this does not quickly reduce the frequency of attacks, inhalations of chloroform should be used. If respiration is threatened, atropin and strychnin should be given hypodermically in the usual doses.

For many years past I have followed the treatment here outlined in all of my private cases and have carefully recorded the clinical course in each. The results have been very gratifying, and although I have not undertaken to put them in statistical form, I wish to give some illustrations.

CASE 1.—A girl, aged 13, was seen in March, 1901. Her father's mother and sister had been mentally diseased. The patient had four convulsions in her second year. She had three typical major attacks in January and February, 1901. Her general health was good. She received bromid treatment. Sept. 18, 1901, there was a severe convulsion, the interval being seven months. Bromid was increased but, May 10, 1902, she had a very severe convulsion and her teeth were injured in falling. The interval was nearly eight months. Bromid was again increased, and, April 18, 1903, she had a light attack, after an interval of eleven months. She has had no attacks since, but treatment is still kept up, though gradually reduced to one dose at night. The interval is now more than fourteen years. The patient's general health is excellent.[1]

CASE 2.—A girl, aged 14, was seen in March, 1905. Two of her mother's sisters died of melancholia. One of her father's uncles died insane. The patient was born in difficult labor. Rickets seemed indicated, doubtless due to proprietary food. She walked first at 20 months. Cleft palate was successfully operated on at 5 years of age. She was always lacking in vigor. Somnambulism was present in childhood. The first known epileptic attack was in September, 1901, in which there was dizziness with probable unconsciousness. In November, 1901, she was seized with a fit of staring and became unconscious. Aug. 3, 1902, she had a light convulsion and a similar one in November, 1902. Then she took bromid steadily by order of another physician, and had no attacks for two years, when bromid was discontinued. In December, 1904, during an exciting revival meeting, she suddenly stood up, turned round and sat down; she was unconscious, but there was no convulsion. She had similar attacks in February and March, 1905. Menstruation was regular, but her general health was frail. She was put on careful, continuous bromid treatment. She was troubled by acne, which was fairly well controlled by sodium cacodylate internally and ointment of yellow mercuric oxid. Up to June, 1909, after an interval of four years and three months, there were no attacks whatever, and both mental and physical health were greatly improved. Indirect information from time to time indicates that the treatment has been continued and that there have been no attacks, with maintenance of improved general health.

CASE 3.—A man, aged 36, when seen in June, 1909, stated that his general health had always been good. In November, 1907, he had a nocturnal convulsion, and two others at intervals of ten and four weeks; the next occurred in November, 1908, all being nocturnal. In January, 1909, he fell from his chair with a cry, convulsion and frothing. Then followed more nocturnal attacks; once he fell out of bed. He had about ten major attacks in all, the last, May 31, 1909, after an interval of one week. Minor attacks were very numerous. Persistent bromid treatment was given. There have been no attacks of any kind during an interval of eight years. The patient works hard, and his general health is perfect. He has been taking only one dose daily, and is now careless about that. He will be warned to continue regularly, as the danger is doubtless still present. This case belongs to a type which is generally to be regarded as unfavorable, both major and minor attacks having been numerous for many years, and an organic change no doubt being present. Yet the result of treatment has been very gratifying.

CASE 4.—A boy, aged 8, was seen in October, 1900. His father has some kind of nervous spells. His father's cousin and niece were epileptic. His mother was tuberculous. His mother's father had "neuralgia of the heart," and was probably hysterical. An older sister was very nervous. The patient had rickets in infancy. At 5 years of age, the patient had a convulsion at the beginning of a cold and again in a few weeks at the onset of measles. In December, 1898, and in January, 1899, he had repeated violent falls, said to be without unconsciousness, but he often struck his head violently, and once he broke his teeth. In February, 1899, status epilepticus occurred, there being fourteen attacks with frothing and unconsciousness in one day. He was then put on bromid, and had no attacks for a year, when the dose was cut down and the attacks returned, averaging one a month. He sometimes injured his head in falling. Oct. 2, 1900, I put him on systematic treatment. Nov. 23, 1900, there was an attack of unconsciousness probably due to overeating of apples. Dec. 10, 1900, there were three attacks. In January, 1901, there was one attack. Then there were no more attacks for more than eleven years, treatment being continuous but with many modifications because of frail general health, which, however, gradually improved. In May, 1912, he had a contusion of the head and a gap in memory, probably due to an attack, but possibly the result of a blow by thugs. He now omitted medicine, and his general health was not so good. In April, 1913, he had a spasm immediately following a severe reproof by his parents. After this the blood pressure was low, with faintness and palpitation, although he was able to work. Very little improvement resulted from addition of digitalis to nux vomica. In December, 1915, he had an attack on the way home at night. He lay in the street for some hours, and slept heavily afterward. There have been no attacks since. He is able to work, and his general health is fair.

CASE 5.—A man, aged 37, when seen in October, 1912, had his first attack at 20, which was nocturnal, and a second at 23, which was similar. Then he had five or six major attacks each year; later they came on monthly. There were minor attacks of mental confusion almost daily; sometimes many times in one day. He had had 15 grain doses of bromid irregularly, and minor attacks were especially frequent when

1. This patient had two major attacks, July 4 and 5, 1917, showing the single daily dose of 20 grains to be inadequate.

it was omitted. Systematic treatment began, Oct. 28, 1912. He had four minor attacks on successive days after five weeks' freedom. He has had no attacks of any kind since, during an interval of more than four years. In June, 1916, an attack of iritis and a positive Wassermann test showed the patient to be syphilitic, and appropriate treatment was added. The date of the original infection was not determined.

Case 6.—A man, aged 47, was seen in February, 1914. An older brother had an aphasic form of migraine. His sister was very nervous. At about 10 years of age he had four or five "fainting spells." In the last ten years he has had four or five spells of momentary unconsciousness, twice with injury in falling. The last attack came on at breakfast, Feb. 19, 1914. He suddenly lost consciousness and fell forward, cutting his face on a glass. Although systolic pressure was only 105, there was a diagnosis of epilepsy instead of syncope. Bromid in rather small doses, but continuously, was prescribed, together with tonics and a laxative. He did well. There was possibly an attack in October, 1914, after unusual indulgence in candy and port wine. Then he remained actively at work with no sign of attack until Feb. 22, 1917, when he fell unconscious shortly after a very early rising. He had traveled with jolly companions in an automobile about 200 miles since noon the day before. He had eaten luncheon and supper at unusual hours, and of coarse and unusual food. Supper was followed by a late card game with cigars and whisky. Renewed cautions were given, and no attack has occurred since.

Case 7.—A man, aged 43, a railroad station agent, seen in December, 1912, had had typhoid at 17. For about a year afterward he had hemianopic attacks and very brief but severe headaches, apparently migrainous. The tongue and the cheek were occasionally found on waking to have been bitten during the night. In November, 1912, he had a major nocturnal convulsion with passage of feces and a similar one three days later. Another major attack occurred, Dec. 15, 1912. His general health was good. Syphilis was regarded as fairly excluded without a Wassermann test. He was put on the usual treatment. After two years with no sign of attack, medicine was reduced to two doses daily. In June, 1916, the patient had neglected the medicine, had taken an automobile trip and eaten an unusually big dinner when excited and fatigued. A nocturnal convulsion resulted and the tongue was bitten, the interval being three years and six months. Medicine was resumed with renewed exhortation. There has been no trouble since.

Case 8.—A laboring man, aged 33, seen in May, 1916, had had spasms in infancy and has always stuttered. His health is generally good. He has had about fifteen major and fifteen minor epileptic attacks in the last two years. The usual bromid treatment was perfectly well borne. There have been no attacks of any kind during an interval of over one year.

Case 9.—A man, aged 40, a cigar maker, seen in April, 1914, was a neurasthenic, with dyspepsia, constipation, emaciation and despondency. The conditions of his life were bad, owing to poverty and limited opportunity and capacity to work. A major epileptic attack occurred in February and again in April, 1914. He was given a small dose of bromid which had to be further reduced. Distinct improvement as to the neurasthenic condition followed the addition of three minims of deodorized tincture of opium to each dose. There have been no attacks in an interval of three years and two months. The patient's general health is better.

Case 10.—A woman, aged 37, was seen in October, 1913. Her father was hypochondriacal. She had severe typhoid at 16. She has borne three healthy children. About 1903 she began to have attacks of tachycardia with dyspnea and cyanosis, lasting from a few minutes to several hours without disturbance of consciousness. About 1908 she began to have convulsions with absolute unconsciousness, always nocturnal. She had about twelve of these up to July, 1911. Then there was no attack for a year and eight months, during most of which time she was in a sanatorium under ideal conditions, except that the diet was vegetarian. In February, 1913, conditions remaining the same, a nocturnal convulsion caused profound discouragement. In June another convulsion occurred, in August three in one night and in September three in one night. All of these were preceded by fatigue or emotional strain. The treatment was difficult on account of anorexia, emaciation, indigestion and constipation with indicanuria, rheumatic disturbances and pyorrhea. The lungs, heart and kidneys were normal. Ten grains of bromid morning and noon, with 20 at night, were not tolerated, and the amount was reduced. A course of salol with small doses of calomel was given two days in each week. The teeth were treated; one with pus at the roots was extracted. After two years' residence in Denver, where she was free from attacks and better in every respect, except for slightly diminished weight, she returned to her home in a distant state. Here, while tired and nervous, impelled by an abnormal appetite, she ate an excess of salted nuts. A nocturnal attack occurred, the interval being two years and three months. Since then she has been in Denver often enough to permit careful regulation of diet and medicine. The teeth are still a menace, and their necessary treatment is a tax on endurance; but their condition is greatly improved. There has been no further attack, the interval now being one year and six months.

Metropolitan Building.

ABSTRACT OF DISCUSSION

Dr. L. Pierce Clark, New York: In my thirty-four recovered cases of epilepsy whose records of arrest of attacks run from three to twenty years, only one arrest was brought about by the use of bromids. The successful plan of treatment was in part by dietetic methods, but more that of mental treatment. The keynote of the latter was to teach the epileptic an adaptation to the life stresses; to thoroughly objectivate the patient into a useful and interesting life of play and work. The use of bromids to bring about this serenity and balance of mind is, I believe, a mistake. The bromids dull the energy and interest and often disarrange many or all of the bodily functions. Three criteria in future should be considered in marking any case as a permanent arrest from attacks. These are (1) cessation of attacks; (2) general improvement in conduct and working capacity, and ability to stand the various ordinary life stresses without epileptic reactions; and (3) a precise psychometric testing for the absence of deterioration or that which may have been overcome. The latter test should show an enriched and flexible emotional response to word tests, no great delay in time reactions and the absence of perseveration, the tendency to react by the same word or idea to a series of unrelated ideas given in the test. I quite agree with Dr. Pershing's title, that the only kind of treatment for epilepsy should be persistent; it is the only one that has been at all successful in the past and when one comes to understand the nature of epilepsy, and especially the mental makeup of the epileptic, one will comprehend why even this plan of treatment so often fails to produce an arrest or cure.

Recently I have thoroughly examined the character makeup of twelve hemiplegic epileptics, and in all there was a neurotic heredity not dissimilar to ordinary idiopathic epilepsy. All the individuals had the epileptic constitution or personality before their epileptic attacks began, or even before their palsy, showing that the cerebral insult probably makes mandatory a sequential epilepsy in all cases of infantile cerebral palsy, which accords with the clinical facts as we know them. The absence of the epileptic constitution or its mental stigma, though convulsive attacks may be in evidence from various causes, warrants our withholding a diagnosis of essential epilepsy in any case. The mental factor, therefore, is the important element in diagnosis as well as treatment.

Dr. W. J. G. Dawson, Sonoma State Home, Calif.: Fifty years ago there was established an epileptic hospital on Blackwell's Island. We were then just beginning treatment with bromids. This was probably the first hospital in America set apart for the treatment of epileptics. We expected to make many cures by the bromid treatment, and there were improvements at first, but at the end of six months the patients were about the same as at the beginning. The result of our bromid treatment in California is just the same as the

results after six months' treatment on Blackwell's Island. I do not believe that any bromid will cure epilepsy. It will suppress the spasms, but I doubt if it will cure. We know so little about the cause of epilepsy. I saw an abdominal operation on Randall's Island the other day on an epileptic boy 19 years of age, and they found intestinal adhesions. They said they had done all they could and then "turned him over to the plumber" to remedy conditions. We certainly do not know much about the cause. It is a complex disease; the combined conditions may result from different causes, sometimes of the brain, sometimes of the intestinal canal. How often in private practice we find spasms in children caused by eating too much cake, candy, pies or puddings, and in epilepsy the trouble is much the same. The cause may yet be found in the abdominal organs. We have 330 cases in our Home, and we have used almost everything, even snake venom (crotalin), and we find nothing does any permanent good but regular diet and regular habits.

DR. W. H. KIDDER, Oswego, N. Y.: That epilepsy is a complex instead of a definite entity seems somewhat doubtful. There is a physical and psychic picture that is very definite. It is different from the convulsions of children's illnesses. The use of bromids is so general that one must be familiar with it. If one approaches the use of bromids from the psychic standpoint, more good will be accomplished than if they were used merely to suppress convulsions. If used with proper care and to produce a feeling of serenity in the patient, a good result will be obtained. If they are used merely to control convulsions we shall not get good results. I believe that bromids help us to produce a mental attitude that we want to get in the patient, and it will thus help to change environment by giving the patient a more serene state of mind.

DR. N. A. PASHAYAN, Schenectady, N. Y.: I have seen 174 cases in the last twelve years. Three cases in adults started late in life. The Wassermann test was positive. The cases were idiopathic epilepsy and they all responded to antisyphilitic treatment.

DR. L. M. CRAFTS, Minneapolis: I rarely have had occasion to use bromids and never more than a 5-grain dose. I think the speaker referred to the psychic effects of the bromids. That is true as far as quieting the patient is concerned. They are not only quieting, they are depressing. The most important thing, however, is a regular régime and complete regulation of the life of the individual, helping digestion, eliminating all meats, aiding bowel, kidney and skin elimination and keeping the patient free from strain and excitement. That is the way to get results. Persistence is important, and it is often found that from two to five years' treatment must be given before results are obtained. I have had many cases show complete subsidence of attacks with this method. I think dependence on bromids is archaic and should be abandoned. They cloud the results and often are clearly harmful.

DR. E. D. FISHER, New York: I make a distinction between the essential form of epilepsy and that occurring in later life. In early life we have a condition of mental change, but in later life we do not find the mental changes that occur in children. It is natural that this should be so. Epilepsy in childhood is associated with an undeveloped brain, and we must look for an etiologic factor which can never be the same as in adult epilepsy. I refer to epilepsy of circulatory origin. The disease can be helped by bromids, which we must use to alleviate the symptoms, with strict attention to the intestinal tract and the diet.

DR. H. T. PERSHING, Denver: I agree that mere suppression of the attacks would be of little avail; we must have a discontinuance of attacks along with improvement in physical and mental health. But the attacks themselves are a very serious disadvantage to the individual, and if we can give the patient long intervals without any attacks we thus do a great deal to effect his readjustment with his world. Most of my patients are able to work. We can judge by the condition of the patient if he is able to do things better than before, and this is the test of the treatment, rather than the mere suppression of the attacks. Skilful use of the bromids will help a great deal in attaining this end. I do not think that Dr. Dawson is right in applying to these cases the results of treatment on Blackwell's Island. Private cases of epilepsy are much more favorable than institutional ones. The serenity of the patient in these cases is undoubtedly of great importance, and every epileptic should be treated from the psychic standpoint as well as from the physical; but the utmost one could do by mental treatment alone would not accomplish nearly as much as the combination with proper medication. In a small proportion of my cases I have had evidence of syphilis, with a positive Wassermann. Antisyphilitic treatment has been added, but I do not expect to cure epileptic attacks with the latter treatment, even when syphilis was the original cause.

A STUDY OF ARTERIAL SOUNDS*

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This study was undertaken in order (1) to gain evidence for the transmission of the heart sounds in the arteries; (2) to secure evidence of the cause of the sounds heard in the brachial artery in taking blood pressure; (3) to determine whether or not any relation exists between arterial sounds and blood pressure, or between arterial sounds and arteriosclerosis, and (4) to determine whether or not arterial sounds have clinical and diagnostic value. Two hundred cases have been taken in regular order, some being persons in good health, some private patients, and some ward patients. In each case the name, age, sex, and diagnosis were recorded; then the pulse rate, and systolic, diastolic and pulse pressure were registered; the condition of the arteries was classified as normal or arteriosclerotic, and the heart sounds were classified as clear, split or murmurs. The stethoscope was applied *without pressure* over the right and left carotids, subclavians, brachials and femorals. The presence, absence and character of the sounds and murmurs in the arteries were noted and recorded. The acuteness of one's hearing increased and the sounds became more clear as the work progressed.

Little work has appeared in English on this subject. Laennec[1] was the first to notice the existence of arterial sounds and murmurs, and speaks of the "bruit normal." Corrigan[2] discovered that an arterial murmur developed in a tube or an artery at the point of pressure and constriction, or where the fluid flows from a narrow to a wider part. Hamernyk[2] described the two sounds usually heard in the carotid and subclavian arteries. Kiwisch,[2] Theodore Weber,[2] and Chaveau[2] agreed with Corrigan, and further showed that the murmur due to constriction and the resulting vibrations follow the blood stream. Conrad[2] first raised the question as to whether the sounds arose in the arteries or were transmitted from the heart; and Marey[2] noticed that sounds occur in the arteries in aneurysm and in diseases of the heart.

Richardson[2] claimed that blood is a poor sound conductor, and all subsequent work since his time has credited this premise, which is probably entirely wrong. Friedrich[2] finally concluded that the first sound in the artery was due to arterial tension, or was arterial in origin; and the second sound is cardiac

* Read before the Section on Practice of Medicine at the Sixty-Eighth Annual Session of the American Medical Association, New York, June, 1917.

1. Laennec: Mediate Auscultation and Diseases of the Chest, pp. 706-707.

2. Quoted by Weil: Auskultation der Arterien und Venen, 1875.

in origin. Shoder[2] denied even that any of the arterial sounds were transmitted from the heart. Niemeyer[2] first seems to have grasped the idea that "a stream of fluid producing pressure may carry sound due to vibrations originating from valvular defects. . . . The vibrations observed for example in cases of mitral defect must therefore take place in the ventricle if there is insufficiency, in the auricle if there is stenosis." Traube[3] thought that hyperpressure and arterial sounds were related, and that in hyperpressure there were no sounds in the femoral arteries. This study proves the reverse to be true. Weil's[2] work, published in 1875, is the most exhaustive on the subject, and he concludes that the first and second sounds heard in the carotids and the subclavians are transmitted from the heart, and that arterial murmurs originate in the vessel.

Much confusion and many variable conclusions exist in the literature, due in large measure to the failure to separate terms accurately, and a certain inexplicable hesitancy to admit the evidence that proves the two arterial sounds are transmitted from the heart. As noted by Weil and Frank,[4] and accented by Wiggers,[4] neither the heart sounds and murmurs nor the arterial murmur can be classified musically, but all belong to the category of murmurs. The Germans have classified the sounds in the arteries that are short, sharp and quick ending as "Töne," and those that are prolonged and less sharply defined as "Geräusche." These in English would be tones and noises, but modern usage would call the first, sounds; and the indefinite, swishing and blowing vibrations, murmurs. Every noise in the artery is therefore either a sound or a murmur. The murmurs may be further classified as (1) pressure murmurs due to the constriction of an artery at any point from external pressure, as from a stethoscope; (2) natural murmurs that originate in the arteries without external pressure, as in the right subclavian or the dynamic or slack abdominal aorta, and (3) the valvular murmurs, fainter and swishing, the transmitted blows of cardiac murmurs. The last are more blowing and less vibratory in type than the first two. They are of the same pitch, but softer than when heard over the heart.

Sounds and murmurs in the heart and arteries conform to the laws of the physics of sound, which may be summarized as follows: All sound is due to vibration, whether occurring in air, fluid, or solid mediums. Sound takes time to travel, needs a material to travel through, and is a disturbance of the wave kind.[5] The heart sounds may be transmitted through any of the surrounding mediums; both through the blood and down the blood stream by means of the vibration of its particles, aided also by the blood movement; and through the tissues because the vibrations continue through the wall of the heart, the soft parts, the bones, the skin, and the air to the ear. Indeed, Cattani,[6] under the title of "The Arterial Fremitus or the Vibrating Pulse," describes the intense thrill frequently felt by palpating along the pulsating artery, his "vibrante pulso," or vibrating pulse.

I have been unable to find the rate of the transmission of sound through the blood or tissues. Such transmission through different mediums is determined by their rigidity and their density; rigidity increasing the rate, density decreasing it. Liquids have much higher rigidity in proportion to their density than gases, and carry sound at much higher velocity. Water confined in tubes does not carry sound waves at the same velocity as a loose bulk of the liquid in which the propagation is unrestrained by the walls of the tube. The rate is increased by a rise of temperature, and solutions carry more rapidly than pure solvents. The calculation of the velocity of sound through a large, free bulk of human blood would not be difficult; but confined in arteries of varying elasticity, the rate would be affected not only by the density of the stream, but by the character of the soluble matter, and the tone of the arterial wall. Practically, however, the channel distances being in meters, or less, the actual time required for sounds from the heart to reach exposed sections of the arterial tubing would differ very little from that of a salt solution of the same density and temperature, or at the rate of 1,550 meters per second, as against 1,435 meters per second in bulk water. Dissolved gases retard the rate of propagation. In the short distance between the heart and the carotids and the subclavians, the heart sounds would be transmitted practically instantaneously.

Sahli[7] states that "two sounds are heard over the carotids and subclavians, a systolic from the systolic tension of the vessel wall, and a diastolic transmitted from the aortic valves." Weil, however, noted that abnormal sounds in the heart were transmitted to the carotids, but he called them sounds, rather than murmurs. The evidence is clear that the first sound is not due to the systolic tension of the vessel wall, but rather is transmitted from the mitral closure, just as the second is transmitted from the aortic closure.

The following facts prove that both first and second sounds are transmitted from the heart, and that mitral and aortic murmurs, both direct and indirect, are also thus transmitted. The mitral closure as transmitted to the carotids and the subclavians is duller and fainter, as a rule, than the aortic closure.

1. These sounds occur in orderly sequence at the same rate, and apparently at the same time intervals, and of similar tone as the heart sounds. In Case 86 of our series with a double, bigeminal pulse and a pause, four sounds occurred in rapid succession in the carotids and the subclavians, followed by the same pause. In Case 166 with mitral regurgitation and myocarditis the sounds of premature contractions in the heart were transmitted and plainly heard in the carotids and subclavians.

2. A clear, normal mitral closure occurred in seventy-five cases, and was heard in the carotids and subclavians seventy times, or 93 per cent.

3. An accented mitral closure in the heart is heard as an accented heart closure in the carotids and subclavians three times in three cases, or 100 per cent.

4. A split mitral closure occurred in forty-eight cases in our series and was followed by a split first sound in the carotids thirty times, or 62 per cent.; and in the subclavians twenty-five times, or 52 per cent.

5. Mitral regurgitation murmurs occurred in fifty-eight cases, and were heard fifty-one times, or 90 per cent., in the carotids; and fifty-two times, or 90 per cent., in the subclavians.

6. Loud murmurs of the mitral valve, either presystolic or diastolic, often replace the clear mitral closure in the carotids and subclavians. Case 116, a negro boy, aged 4 years, with loud, blowing presystolic and systolic mitral murmurs, with a loud ringing mitral closure between, had transmitted to

3. Traube, cited by Ziemssen: Cyclopaedia of the Practice of Medicine, **6**. Rosenstein: Diseases of the Circulatory System, pp. 135-141.
4. Wiggers: Circulation in Health and Disease, Philadelphia, 1915, p. 174.
5. Article on Sound, Encyclopedia Britannica, **25**, 437.
6. Cattani, G.: Il Fremito Arterioso o Polso Vibrante, Pensiero med., 1913, **3**, 561 568.
7. Sahli: Diagnostic Methods, p. 348.

his carotids and subclavians the loud, blowing, presystolic murmur, then the pause, during which the sharp mitral closure occurred, followed by the loud, blowing, mitral regurgitant murmur. This one case is proof of the transmission and transmissibility of the mitral closure and of murmurs at the mitral orifice.

7. Six presystolic mitral murmurs were heard five times in the carotids and subclavians, or 84 per cent.

8. The clear, aortic closure occurred ninety-five times, and was heard in the carotids and subclavians ninety-five times, or 100 per cent.

9. The aortic second sound was accentuated in forty-nine cases and was heard in the carotids and subclavians forty-seven times, or 96 per cent.

10. The aortic second sound was split in sixty-two cases, and was in the carotids fifty times, or 80 per cent., and in the subclavians forty-seven times, or 71 per cent.

11. There were twenty-six cases of aortic regurgitation, of which twenty-five were heard in the carotids, or 96 per cent., and twenty-four in the subclavians, or 92 per cent. Often an impure aortic closure may show a lisping or a leaking second sound in carotids and subclavians.

12. The aortic first bruit occurred in ten cases, and was heard nine times in the carotids and subclavians, or 90 per cent.

13. The murmurs of aortic stenosis, as is well known, are transmitted into the subclavians and vessels of the neck. In Lynch's[8] case this murmur was heard over the right radial at the wrist and wholly masked the succession of sounds during the systolic reading of the pressure.

14. In Case 89, a sharp, short, blowing murmur occurred between the mitral and aortic closures with no relation to either. This was probably a congenital defect in the interventricular septum; with the passage of blood apparently from the left to the right ventricle during the latter two thirds of systole, clear mitral and aortic closures occurred in the carotids and subclavians.

15. Mitral presystolic murmurs with the vibrations passing through the ventricle and aortic valves are heard plainly in the carotids and subclavians; but Austin Flint murmurs due to the spraying blood passing backward into the heart through the opening in the aortic valves are not heard in the carotids and subclavians. This is plainly demonstrated when we compare Case 116, already noted, with Case 120, in which a mitral regurgitation and an A^1 bruit and an A^2 regurgitation were heard in the carotids and subclavians, but a most beautiful, loud, spraying Austin Flint murmur heard plainly in the fifth space at the apex was not heard in the long pause in the vessel.

16. Experimental proof in the laboratory by tearing a segment of aortic and mitral valves would probably be very easy.

Matterstock,[9] in 1878, first called attention to the split diastolic arterial sound, which he thought was due to a double contraction of the ventricle. Weil failed to notice this, and Matterstock is probably in error in attributing this to the double closure of the ventricle. In our experience these split sounds in the arteries all have a split aortic closure or a split mitral closure in the heart. These split closures are due not only to the separate closure of the two valves of different sides, but far more frequently to the different time closure of the segments of one valve. The latter is transmitted from the heart. Sixty-two of the 200 cases showed a split, or duplicated aortic closure, and this split closure was heard as a split second sound fifty times in the carotids and forty-seven times in the subclavians. In Case 54 it was heard in the brachial artery before the application of the cuff. In twelve cases this split closure was heard in the brachial artery in the second, third and fourth phases, never in the first or fifth phases of pressure readings.

In no case was the split sound heard in the brachial in taking pressure where there was not a split aortic closure in the heart. As the air escapes from the cuff, a murmur and a sound develop. The murmur is usually heard first and in the first and second phases, and often disappears before the sound. The murmur is due to the passage of blood through the narrow opening into the wider space of lower pressure and diminished peripheral resistance below. Bard[10] has shown that if a cuff be applied below over the forearm and the pressure raised above the systolic pressure and held, and blood pressure is taken from a second cuff applied over the arm, no murmurs are heard in the brachial artery. With the forearm cuff applied, the condition of wider area, lower pressure, and diminished peripheral resistance below is absent because the arteries are distended.

The sound heard on taking the pressure is next to be accounted for. It is often clear and loud, may be split, and usually ceases with the diastolic pressure, or when the artery is open again. Murmurs may originate at the point of constriction in an artery, but sounds hardly originate at such a point. We know that the aortic closure sound is transmitted anteriorly through the chest wall and into the carotids and subclavians, and throughout the blood stream. This brachial sound:

1. Occurs at the same rate of the pulse.
2. Usually disappears when the lumen of the brachial is open after diastolic readings.
3. Is split only when the aortic valve is split.
4. Occurs usually in the second, third or fourth phase.
5. Is probably the transmitted sound from the closure of the aortic valve.

TABLE 1.—ARTERIAL SOUNDS. CLASSIFICATION OF CASES STUDIED BY DISEASES AND SEX

Diagnosis	Age, Males										Age, Females										Total Men and Women
	1-10	11-20	21-30	31-40	41-50	51-60	61-70	71-80	81-90	Total	1-10	11-20	21-30	31-40	41-50	51-60	61-70	71-80	81-90	Total	
Good health	.....	2	6	1	4	.....	2	.....	.....	15	.....	.....	7	8	.....	.....	2	.....	.....	17	32
Pregnancy	.....	.....	.....	.....	.....	.....	.....	.....	.....	0	.....	6	10	2	.....	.....	.....	.....	.....	18	18
Nervous diseases	.....	1	.....	.....	4	1	1	2	.....	9	.....	.....	.....	4	2	1	1	.....	.....	8	17
Renal diseases	.....	.....	.....	.....	.....	1	2	.....	.....	3	.....	1	.....	3	5	4	.....	.....	.....	13	16
Respiratory diseases	1	1	.....	1	.....	.....	.....	1	.....	4	.....	.....	5	3	1	.....	.....	.....	.....	9	13
Anemias	.....	1	.....	1	.....	.....	.....	.....	.....	2	.....	2	2	1	1	.....	.....	.....	.....	6	8
Syphilis	.....	1	3	3	.....	1	.....	.....	.....	8	.....	.....	2	2	.....	.....	.....	.....	.....	4	12
Circulatory diseases	1	2	6	6	8	6	1	.....	.....	30	.....	.....	2	4	3	7	4	1	1	22	52
Acute infections	.....	.....	2	.....	.....	2	.....	.....	.....	4	1	1	3	2	.....	.....	.....	.....	.....	7	11
Digestive diseases	.....	.....	.....	4	1	1	.....	.....	.....	6	.....	.....	2	2	.....	.....	.....	.....	.....	6	12
Miscellaneous	.....	.....	.....	1	.....	.....	.....	1	.....	2	.....	1	3	2	1	.....	.....	.....	.....	7	9
	2	8	17	17	17	12	6	4	0	83	1	11	37	34	13	12	7	1	1	117	200

8. Lynch, O. B.: Queries and Minor Notes, THE JOURNAL A. M. A., March 31, 1917, p. 995.

9. Matterstock, G. K.: Die Auscultatorischen Erscheinungen der Arterien mit besondere Berücksichtigung der Herzkrankheiten, Deutsch. Arch. f. klin. Med., 1878, **22**, 507-549.

10. Bard, L.: De l'appréciation des résistances périphériques par l'auscultation des souffles artériels, Arch. d. mal. du cœur, 1915, **8**, 105-111.

6. The same sound is heard in the upper third of the brachial artery above the cuff. In this upper area it was heard in one case when the cuff was inflated, whereas the systolic pressure was only 96. It occurred above at 68 to the minute, the same as the patient's pulse rate, and disappeared at the same instant that blood passed through the brachial artery covered by the cuff, or at the instant of the systolic pressure. This subject of the upper cuff sound needs investigation. Subcutaneous fat, experience in auscultation, and the proper placing of the cuff low enough down on the arm are factors in hearing this upper sound clearly.

TABLE 2.—SUMMARY OF CARDIAC SOUNDS AND MURMURS AND PERCENTAGE HEARD IN THE ARTERIES

Heart		Carotids		Subclavians		Brachials		Femorals	
	No.	No.	%	No.	%	No.	%	No.	%
Mitral sound	75	70	93	70	93				
Mitral split	48	30	62	25	52				
Mitral regurgitation	58	51	90	52	90				
Mitral stenosis	6	5	84	5	84				
Aortic second sound	95	95	100	95	100	28	29	46	48
Aortic second accented	49	47	96	47	96				
Aortic second split	62	50	80	47	71				
Aortic regurgitation	26	25	96	24	92				
Aortic first bruit	10	9	90	9	90				

7. This sound is also heard when the stethoscope is applied with pressure. It is evident, therefore, that it is not due, as is so commonly stated, to the resonance of the cuff, and that its cause must be proximal to the cuff, since it is heard above it, rather than distal because it is heard below it.

8. It is probable that when an artery is open this transmitted aortic closure sound passes through the brachial artery, and is restrained by the walls of the tube; whereas when the artery is partially or entirely closed the sound vibrations cannot continue easily down the blood stream, but pass unrestrained through the walls of the artery. When a rock is thrown on the smooth surface of a pond, many ripples follow each other in concentric circles to the shore; but when the same rock is thrown on the running waters of a small river, the ripples are so faint and few and move such a short distance that they are often not noticed. The surface ripples are destroyed by the momentum and motion of the river water. The blood is of greater density and under greater pressure than the river water, and is moving at a more rapid rate, and sound vibrations are more apt to pass down stream when the channel is open, or to pass laterally when the channel is narrowed or closed.

Dehio,[11] in 1913, gave twelve cases of febrile disease, anemia, heart lesions and exophthalmic goiter in which he heard spontaneous sounds in the femorals. He states that these sounds occur in cases of hypopressure in the majority of cases, and, as a rule, when the diastolic pressure is very low and the pulse pressure high. His theory is that in such cases there is an abnormally low blood pressure with defective filling of the artery, and these sounds are due to vibrations of the vessel wall, and the murmurs to the swirling of the fluid in the vessel. This is the first attempt to show a relation between arterial sounds and blood pressure, but twelve cases are probably too few in number to permit a conclusion. He seems to fail to consider that the femoral sound may be a transmitted aortic sound. Indeed, the difficulty is to prove that what he calls a spontaneous femoral sound exists at all. It is true that murmurs are due to the vibrations of the vessel wall, but it is difficult to account for the sounds in the vessels unless we consider them transmitted from the heart.

11. Dehio, K.: Ueber das pulsatorische Tönen der Arterien, St. Petersb. med. Ztschr., 1913, **38**, 259-263.

In our series for the purpose of determining whether any relation exists between blood pressure and arterial sounds, 97 cases were divided into 3 groups. Group 1 consists of fifty-one cases with a systolic pressure of 10 and below (Table 3); Group 2 includes thirty-seven cases with a systolic pressure between 125 and 175; and Group 3, nine cases, with systolic pressure of 200 and above. Between Group 1 and Group 2 are omitted the cases of systolic pressures between 100 and 125; and between Groups 2 and 3 are omitted those cases with systolic pressures between 175 and 200. These omissions permit clearer conclusions because of their breaks.

In the ninety-seven cases in the three groups, the first and second sounds in the carotids and subclavians are equally and easily transmitted, and are not affected by pressure. However, when we reach the brachials and the femorals, we find that in Group 1, 10 per cent. were heard in the brachials and 24 per cent. in the femorals, and in two cases sounds which we call M^1 and which we assume were transmitted mitral closures, were heard in addition in the femorals. In Group 2, 5 per cent. were heard in the brachials and 22 per cent. in the femorals. In Group 3, 77 per cent. were heard in the brachials, and 33 per cent. in the femorals. This would seem to indicate on the basis of the transmission of the brachial and femoral sounds from the heart: (1) the higher the pressure, the greater the transmission in arteries more distant from the heart, and (2) in those arteries near the heart there is no relation between arterial sounds and blood pressure.

The natural arterial murmurs occurred in sixty cases, fourteen times in the carotids, with an average pressure of 118-65-53; forty-four times in the subclavians, with an average pressure of 109-66-43, and twice in the femorals, with an average pressure of 107-66-41. However, the extremes of systolic pressure vary between 107 and 90, and the extremes of diastolic pressure between 95 and 30. In taking many of these cases, I gradually came to feel that the natural arterial murmurs were more frequent in the normal or low pressures, though they certainly do occur in the highest pressures. They probably occur in very high pressures in cases of irregularity and calcification of the intima in advanced arteriosclerosis. It is often impossible, except occasionally over the aorta, to prove such conditions. It is probably true, therefore, that:

1. Natural arterial murmurs occur chiefly in the carotids, subclavians and femorals in 30 per cent. of our cases.

2. As a rule they occur in pressures of a low normal.

3. They are found occasionally in high pressures.

Arteriosclerosis seems to have no effect on the easy transmission of the heart sounds through the arteries,

TABLE 3.—LACK OF DEFINITE RELATION BETWEEN ARTERIAL SOUNDS AND BLOOD PRESSURE

Blood Pressure	Cases	Average Age	Average Pulse	Average Blood Pressure	1 M in C.	2 A in C.	1 M in S.	2 A in S.	2 A in B.	2 A in F.	1 M in F.
I.—100 and below	51	29	83	96-59-37	50	51	46	48	5	12	2
II.—125-175 inclusive	37	46	84	145-83-62	34	36	34	36	2	8	
III.—200 and above	9	84	57	227-127-100	8	9	7	9	5	3	

according to Table 5. The sounds were plainly heard in the vessels in sixty-three cases of arteriosclerosis, and in 137 normal vessels, or 100 per cent. of the series. In sixty-three cases of arteriosclerosis there were thirty-two with cardiac murmurs, of which thirty-one murmurs were heard in the vessels, or 97 per cent. In normal vessels there were forty-three with cardiac murmurs of which forty-one were heard in the vessels, or 95 per cent. This difference of 2 per cent. is hardly sufficient to indicate any marked difference in the transmission of murmurs from the heart in arteriosclerotic vessels as compared with normal vessels.

TABLE 4.—ARTERIAL MURMURS

	Cases	Average Age	Average Pulse	Average Blood Pressure	Highest Blood Pressure			Lowest Blood Pressure		
					Systolic	Diastolic	Pulse	Systolic	Diastolic	Pulse
Carotids....	14	31	88	118-65-53	170	80	70	94	30	40
Subclavians	44	28	83	109-66-43	170	95	70	90	30	15
Femorals....	2	43	93	107-66-41	110	78	55	105	55	27

The murmurs and sounds that occur in the femoral artery have been the battle ground in arterial sounds since Duroziez[12] first discovered his double murmur in 1861. In 1867 Traube[13] described his two peculiar phenomena in the femoral artery associated with aortic insufficiency. The first is a double murmur of which the second blow comes from pressure on the femoral artery. The second is a double sound in the femoral artery, and is not, as Traube thought, pathognomonic of aortic insufficiency, but occurs in other conditions. Of Weil's[2] 600 cases he found only seven with Duroziez's double murmur, and only two with Traube's double femoral sound; and both of these were in cases of mitral stenosis and aortic regurgitation. Many explanations of these two series of phenomena have been given, but a discussion of all of these would occupy another paper. Suffice it to say at this time that probably the true explanation of the pistol shot sound is the transmission of the aortic second sound in aortic insufficiency, and of the double sound of Traube is the transmission of the mitral and aortic sounds from the heart through the blood stream. Natural arterial murmurs may originate in the femorals as in the carotids and subclavians, and pressure simply produces a pressure murmur in the femorals as elsewhere. Certainly none of these are pathognomonic of aortic insufficiency as has been asserted. Dehio,[11] Heynsius,[14] François-Franck,[15] Schultz[16] and Friedreich[17] have all written extensive papers in an attempt to explain the femoral phenomena. The femoral sounds are interesting theoretically, but are of little value clinically, except as interesting clinical phenomena.

It is evident that the transmission of sounds of the left heart to the carotids and subclavians gives four additional places for diagnosis in addition to auscultation over the precordial area. The arrhythmias may be noted in the vessels, particularly premature contractions, bigeminal pulse, sinus arrhythmia, and to a less extent auricular fibrillation. In three cases of emphysema the vessel sounds were clear and better than over the heart. Weil four times found them in this disease rather than sounds at the base of the heart. It is difficult sometimes to distinguish between the mild aortic stenosis and a simple A^1 bruit, and the vascular sounds help to a correct conclusion. The murmurs are often transmitted to the vessels with such clearness that I have had hospital interns who had never listened over carotids hear them the first time. In myocarditis and hearts in a gallop rhythm one often hears a clearer sound in the vessels than over the heart. It is always well to remember that it takes a good heart muscle to make a clear heart sound or a strong murmur. In cases of syphilitic aortitis with fine, high, faint closure of the aortic valves, or the older cases with clanging, tympanic closure confirming evidence is heard, particularly in the carotids. As a rule, the sounds in the left carotid and left subclavian are clearer than in their fellows, because the former vessels originate more directly from the aorta without the interposition of the innominate. The sounds in the right subclavian are also of less value because of the greater frequency of the natural arterial murmur in the right subclavian, due probably to natural pressure in systole from the right rib together with its snugness to the right lung, particularly during inspiration. Too often we take a cardiac murmur as a status quo affair and fail to remember that it is an evolutionary and progressive condition, which begins maybe with an acentuation of the valves, followed by a splitting, and then a murmur; or it begins with an endocarditis and inflammation. Valve destruction, the regurgitation, perhaps followed by mitral stenosis may develop finally. These finer details in the evolutionary pathology of a valve lesion are often clearer in the left carotid than over the heart.

CONCLUSIONS

1. Sounds and murmurs originating at the mitral and aortic valves are transmitted throughout the arterial system, and are heard usually in the carotids and subclavians, only sounds more rarely in the brachials and femorals.

2. There is little evidence of a relation between arterial sounds and blood pressure, except that the higher the pressure and the greater the pulse amplitude, the more apt are sounds to exist in the femoral arteries.

3. It seems that sounds and murmurs from the heart are transmitted practically as well in arteriosclerotic vessels as in normal vessels.

4. Sounds in the femoral arteries are of little, if any, clinical value, and are not pathognomonic of aortic insufficiency.

5. It is probable that the murmur over the brachial artery heard in taking blood pressure is due to the

TABLE 5.—SOUND AND HEART MURMURS TRANSMITTED

	Sounds			Murmurs		
	Cases	Number	Per Cent.	Cases	Number	Per Cent.
Arteriosclerosis.....	63	63	100	32	31	97
Normal vessels.....	137	137	100	43	41	95
Total.....	200	200	Av. 100	75	72	Av. 96

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constriction of the artery, and that the sound is due to transmission from closure of the aortic valve.

6. The arterial sounds in the carotids and subclavians, particularly the left, often have additional clinical value in the study of the heart.

Candler Building.

ABSTRACT OF DISCUSSION

DR. A. E. ROUSSEL, Philadelphia: The essayist fails to tell us whether the louder murmurs are carried through in a louder degree than the faint murmurs. It seems to me that the faint murmurs would be carried to a less distance than the loud ones. Another point is whether the arterial tension has not had much to do with the transmission of the murmurs; with high arterial tension the murmurs should be transmitted better than with low pressure. Those working in tuberculosis work occasionally see cases in which the degree of consolidation in the lungs is not marked, but in which a systolic murmur is heard somewhere over the lung area. This is due to constriction of the artery by tuberculous masses. I have been particularly interested recently in working out the oculocardiac reflex, which is obtained by pressure over the eyeball, maintained for a period of two minutes. This will cause a diminution in pulse frequency in most persons and an increase in some others. The neurologists claim that an acceleration or retardation of ten beats or more is indicative of some trouble in the central nervous system, as in disseminated syphilis. I have noted an additional sign which, as far as I know, is original, and which I take pleasure in recording here. In a case of chronic myocarditis in which I only suspected the presence of a murmur, pressure on the eyeball for two minutes gradually brought out this murmur in a very decided amplitude. Since then I have been studying this sign in over 200 cardiac cases, and I can say now that continued ocular pressure as directed in faint murmurs will markedly accelerate those murmurs and bring them out, and in cases of functional murmurs the results would seem to be the opposite. Functional murmurs seem to disappear or diminish and organic murmurs to increase. This is a simple test, easily applied and I believe will prove to be of real value. I am carrying out experiments with the electrocardiograph and polygraph and hope to try the new phonocardiograph before the publication of a paper on this subject.

DR. R. A. BATE, Louisville, Ky.: Since the basis of the paper seems to depend on the contractions of the heart itself, I should like to ask Dr. Roberts what part he thinks the variation in the causes of the heart contraction plays in the various heart sounds? All of us have observed that some heart murmurs disappear, and I wish to ask if the explanation on the internal secretion basis is right. McKenzie has shown that the heart will act for days when taken out of the body, and certain conclusions have been drawn from this. We know that whatever excites this contraction is not conveyed through the nervous system. On the internal secretion basis, this must be in the heart itself, like secretin in the alimentary tract. Does the quantity of this secretion, which possibly is formed in the heart itself, or whatever excites cardiac contractions, play any part in the making of the murmurs? It has been shown pathologically that many murmurs are not due to changes in the valves.

DR. STEWART R. ROBERTS, Atlanta, Ga.: We attempted to investigate the relation between arterial sounds and blood pressure. We found in those arteries more distant from the heart in hyperpressures of 200 mm. and above, that the sounds seemed better transmitted to the femoral artery than in cases of hypopressure. The cases were divided into three groups according to the blood pressure: (1) those of 100 mm. and below; (2) those of 125 mm. to 175 mm., inclusive; and (3) those cases of 200 mm. and above. In the hypopressure cases we came to feel that the murmurs occurred in the artery more frequently, as distinguished from the sounds in the femoral artery in hyperpressure. Murmurs seem more common in the hypopressure cases, and the sounds in the hyperpressure cases. The cardiac murmurs, on the other hand, if found in the heart are found in the vessels, and vice versa. There are exceptions to this, however. In emphysema with a distended lung overlapping the heart, in pericarditis with effusion, and in fibrinous pericarditis in which the sounds of the heart are ruined by the friction sounds, the heart sounds are heard better in the carotids and subclavians. I cannot speak as regards the relation of the ductless glands and the arterial sounds. It seems to me that as a problem it is speculative, and that we have no facts on which to base a conclusion. In this research it was all we could do to train our ears to hear the sounds and murmurs in the arteries and we had no time for speculative philosophy.

INDICATIONS FOR THE MASTOID OPERATION IN ACUTE OTITIS MEDIA *

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Involvement of the mastoid is ordinarily regarded by the laity and, I am sorry to say, by a large proportion of the medical profession, with an undue amount of terror. If physicians would remember, and explain to their patients, that the mastoid is simply one part of the middle ear, and that every case of acute middle ear inflammation is really a mastoiditis, this false impression would probably, to a large extent, be corrected. A middle ear acutely inflamed and properly drained by free incision of the drum membrane recovers spontaneously. This is really a case of mastoiditis recovering with a minimum of surgical interference. If this drainage — either on account of the severity of the inflammatory process, the particular topography of the mastoid in the individual case, or the extreme virulence of the infecting organism — is insufficient, then a mastoid operation is indicated, that is, it is necessary to drain the middle ear through a posterior incision rather than by an incision through the drum membrane.

INDICATIONS

Certain signs and symptoms indicate insufficient drainage as the result of incision of the drum membrane, rendering imperative drainage by posterior incision, and this term will be used hereafter in this paper as synonymous with the complete mastoid operation.

Pain.—The indication for operative interference which most influences the patient is the symptom of pain. The persistence of severe pain after incision of the drum membrane is, in some cases, an indication for the mastoid operation. After free and, to the surgeon, satisfactory incision of the drum membrane, if spontaneous pain in the ear persists for from twenty-four to forty-eight hours and is sufficient to require the administration of the opiate, pain alone is a sufficient indication for opening the mastoid. I have had a number of these cases, as has any physician who has followed a special practice for several years, and it has been my experience, almost invariably, that in patients in whom spontaneous pain is the only indication for operation, the mastoiditis is of the hemorrhagic variety and that the mastoid cells are extensively developed.

Temperature.—I mention this indication merely in order to dismiss it with a few words. Some of the

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worst cases of mastoiditis that I have seen have run an absolutely afebrile course. The temperature is apt to be more elevated in infants and young children than in adults. A persistent high temperature, or a remittent temperature with exacerbations, naturally calls for exploration. The point that I would emphasize is this, that many of these cases run an afebrile course and that the absence of temperature is no contraindication to operation.

Local Tenderness.—This is one of the most valuable signs. It must be remembered, however, that in cases in which the mastoid is well developed and of the pneumatic type, and when the cells are superficially located, the mastoid may be exquisitely tender within twelve hours after the inception of an acute otitis. This early tenderness is not an indication for operation. It means merely either a hemorrhagic mastoiditis or a very pneumatic mastoid with the cells filled with serum. Many of these cases, which are tender for a few days after the inception of the attack, recover without operation. The situation of the tenderness depends entirely on the particular topography of the mastoid in the individual case. Large cells at the tip will be exceedingly tender in a few hours. After tympanic drainage has been established, this tenderness will gradually disappear. Antrum tenderness is a much more valuable sign. One sign which I consider particularly significant is a recurrent tenderness; that is, the initial tenderness following the middle ear attack disappears. This tenderness is first found at the tip, and is most severe here. Antrum tenderness is insignificant. Then the mastoid becomes practically insensitive to pressure. In the course of a few days, the tenderness returns and then the tenderness is most marked over the antrum. This is a very significent sign, and ordinarily indicates an involvement of the mastoid which will be relieved only by posterior drainage.

Otoscopic Examination.—The signs found on instrumental examination are, to my mind, the most important of all. These consist of evidence of insufficient drainage of the tympanomastoid space through the small incision in the drum membrane and narrowing of the canal at the fundus, that is, in a persistent bulging of the upper and posterior portion of the drum membrane, together with a sinking of the corresponding adjacent meatal walls. This sign, present ten days after the inception of the acute infection has, in my experience, been an almost pathognomonic indication for operation. Of course, there are exceptions to all good rules, and occasionally this rule has gone wrong in my own experience. I should state, however, that the exception has not occurred in more than 1 per cent. of my cases.

Bacteriologic Examination.—Much information can be obtained by studying the bacteriologic content of the discharge. When the discharge is already present, or in early cases in which an incision of the drum membrane has been performed, it is my invariable practice to make a smear of the aural discharge. While, of course, such a smear shows many organisms, it is usually possible to determine the predominating organism which must come from the middle ear. To cite a case in point, suppose we have a smear with the following report: staphylococci, a large number of bacilli, diplococci, and an occasional chain. This condition would undoubtedly mean one of two things: either a streptococcus infection, or a pneumococcus infection. The staphylococci and the large bacilli are undoubtedly canal contaminations and are consequently disregarded. In every case the bacteriologist should be directed to stain the smear so as to determine the presence or absence of a capsule surrounding the existing organisms. The *Streptococcus capsulatus* is always a dangerous organism and one which almost invariably demands operative interference by the posterior incision. I have already reported thirteen cases of *Streptococcus capsulatus* infection in the middle ear in which the mastoid operation was necessary only in two. Most of these cases however, were drained at a very early date by incision of the drum membrane. All of these cases were in private patients and have been under subsequent observation for years, so that I know that subsequent operation was not necessary in any of these cases. It should be taken, however, as an invariable law that a *Streptococcus capsulatus* infection must be watched with exceeding care and that no such case should be considered safe until the middle ear has returned to a perfectly normal condition, the hearing returned to the standard previous to operation, and all canal signs have absolutely disappeared. I have seen many cases of this kind, both in hospital and private practice, which came to mastoid operation from two to six months after the drum membrane had healed. In these cases the otoscopic picture was sufficient at the time of examination to indicate the necessity of operative interference. In many of my own cases mentioned in the foregoing, drainage through the drum membrane was sufficient to render such interference unnecessary.

The amount of discharge in any doubtful case is an indication for operation. The sudden cessation of discharge, with the canal signs indicative of sudden interference with drainage, is an indication for immediate operation. On the other hand, a very profuse discharge persisting for more than three weeks after incision of the drum membrane is also an indication for operative interference. An acute inflammation of the middle ear which is going to recover after incision of the drum membrane will recover within three weeks from its inception, and usually within ten days. A profuse discharge lasting more than three weeks has, in my experience, always been indicative of the fact that tympanic drainage was insufficient and that the case would do better if posterior drainage were established.

Duration of the Inflammatory Process.—The length of time that the middle ear inflammation has continued is also a valuable factor in determining the necessity for operation. As stated in the previous paragraph, an acute otitis media demanding incision of the drum membrane should clear up within ten days to two or, at the utmost, three weeks. If there is a history of spontaneous rupture of the drum membrane and a purulent discharge lasting for four or five or six weeks, it is much safer to establish posterior drainage at once, rather than to take a possible chance of the process being controlled by milder measures. It is true that some of these patients will recover, that is, that the discharge will stop and the opening in the drum membrane will close. Most of these patients, however, are not cured. There are apt to be subsequent attacks, and an operation will probably be necessary at a later period.

Course Following Acute Symptoms.—The date of the primary attack of acute inflammation in the mid-

dle ear is also important in certain cases seen after apparent recovery has taken place, that is, after all discharge has ceased and the patient comes complaining of certain indefinite symptoms, such as headache, general malaise, loss of flesh, indefinite muscular pains, and other symptoms which seem to indicate an unexplained toxemia. The hearing in these cases is ordinarily much impaired, the ear feels full, and there may be some slight disturbance of equilibrium. The canal signs here are extremely valuable. Those indicated under the previous heading of canal signs will almost invariably be seen in these cases. It is interesting to note that the history of the attack of acute otitis media may be very indefinite. I have seen old cases of this kind, and by that I mean, cases extending over six or seven months, in which the primary earache was slight and the discharge almost negligible, and yet the patient had never been well since the acute otitis. In this class of cases, the duration of the middle ear inflammation, and the symptoms of the patient from the inception of the attack to the time that he is seen by the surgeon, constitute the important facts in the history.

I know of no better means of making a diagnosis in these cases than by taking the history in conjunction with the otoscopic appearances. A middle ear that does not clear up after an acute otitis is a focus of disease — no matter if the drum membrane has healed — and the appearance on otoscopic examination will almost invariably demonstrate this fact. Those cases with few symptoms are frequently cases of *Streptococcus capsulatus* infection and, as in many cases seen in consultation, the bacteriologic character of the discharge has not been determined at the time of the primary attack, this fact should always be borne in mind. I have been so impressed with the importance of cases of this character that it has become my invariable practice in doubtful cases to recommend an exploratory operation. My experience has been, invariably, that this operation was not exploratory, but really was an emergency operation. In other words, I have never failed in a single doubtful case of this character to evacuate pus from the mastoid.

History of Repeated Incisions.—I see, each year, a certain number of cases giving a history of three, four or five weeks' duration, or sometimes three or four months' duration, in which there is a persistent discharge, some pain, and a history of repeated incisions of the drum membrane. It may be taken as a rule to which there are few exceptions that in a case of acute otitis media one single competent incision of the drum membrane will drain the middle ear and adjacent structures perfectly if such drainage is possible through such a small opening. The moment that it is necessary to repeat these incisions, the indication for posterior operation becomes imperative. Repeated incisions of the drum membrane simply relieve temporarily the tension within the tympanomastoid space. This temporary relief is really a great menace to the patient, because hereby the important symptoms of pain and temperature are masked, and both patient and surgeon are deluded into believing that the disease is mending, while in fact the inflammatory process is steadily attacking the deeper structures. I have only one word for repeated incisions of the drum membrane, and that is a word of absolute condemnation.

Impairment of Hearing.—I have said nothing up to this point about the impairment of function of the ear as an indication for operation. Whenever, in a case of acute middle ear inflammation, either with or without solution of continuity of the drum membrane, we find a persistent profound impairment of function, this is in itself an important indication for operative interference. The middle ear, being a small space, should be easily drained by incision of the drum membrane, or, in the milder cases, the secretion resulting from the inflammatory process should be absorbed after a moderate interval of time. If there is sufficient involvement to cause profound impairment of hearing persisting for two or three weeks, this is an indication that the mastoid cells have become so involved that the middle ear drainage alone is not sufficient; consequently posterior drainage is indicated.

Involvement of the Static Labyrinth.—Symptoms indicative of this complication call for prompt operative interference. These symptoms are vertigo and spontaneous nystagmus — usually toward the diseased side, more rarely toward the opposite side. Such symptoms may occur without actual labyrinthine involvement. They usually mean, however, a rather extensive infiltration of the bony structures immediately surrounding the labyrinthine capsule, and operative interference in all such cases is indicated.

Meningeal Symptoms.—Certain symptoms referable to the meninges may occur in obscure cases. By this I mean localized headache — usually indicating an extradural abscess, or severe general headache — a much more dangerous symptom. Spinal puncture helps us in diagnosis in these cases. It should be remembered that a spinal fluid under pressure, with an excess of globulins, and a failure to reduce Fehling's solution, is not necessarily an indication of a general meningitis. Moreover, I have seen a very high cell count in the spinal fluid where a simple mastoiditis alone was present. These signs are an imperative indication for a complete mastoid operation and also for the exposure of a large area of dura about the mastoid wound. They are not necessarily, however, indications of a diffuse meningitis.

Roentgenoscopy.—In all my cases of mastoiditis, roentgenoscopy has been of great value. This is particularly true in those cases in which the history is indefinite — when there is a history of acute otitis occurring several months prior to the time of seeing the patient, then an almost complete cessation of the aural symptoms, and yet on examination the canal presents certain well defined changes. Invariably, in cases of this character, roentgenograms in conjunction with the roentgenographer have enabled me to locate a distinct focus of suppuration within the mastoid, and at operation we have never failed to find the pus in the location shown in the roentgenogram. The value of roentgenograms in the earlier cases is perhaps not as evident. Cases of acute otitis will show a cloudy mastoid within the first ten days. In doubtful acute cases it is only by the study of roentgenograms, taken at intervals of a week or ten days, that we are able to arrive at a definite diagnosis. In the doubtful cases, however, and especially in cases in which the acute symptoms have been slight and when we suspect a *Streptococcus capsulatus* infection (and this has, incidentally, been determined at operation in most of these doubtful cases), the roentgenograms have been of the greatest value.

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ABSTRACT OF DISCUSSION

DR. JOHN F. BARNHILL, Indianapolis: The variations from the classical course which many mastoid patients take often interest us most, sometimes puzzle us most, and it is of these I wish chiefly to speak. Mastoiditis cases my be divided into three or four classes. One class develops rapidly, often acts very ugly, such as those that sometimes follow an acute infectious disease where the ossicles are swept away, the temperature is high, the hearing is greatly impaired, and the tenderness is marked over the mastoid. There should be no difficulty in the diagnosis of this class. Then we have that more common class of cases which come on following, let me say, a severe attack of tonsillitis, adenoiditis or rhinitis, with earache, rupture and discharge. But the patient does not get on just right. The ear goes on discharging too long. At the end of ten days or two weeks, which the essayist put as the limit, it has not ended in a cure and we begin to ask why, especially, if the discharge is excessive. I agree with Dr. Dench that in any case continuing ten days or two weeks, if the discharge is excessive, it is a positive indication for mastoid operation. So much pus as we frequently see at the end of ten days or two weeks could not possibly come from so small a cavity as the tympanum, but must come, of course, from the mastoid antrum and cells. Then again, we have the class of case that has some, possibly much, discharge from the ear, in which the patient looks septic, his strength is not up to par, he is not able to do the things that he wishes to do. His temperature may be entirely normal; he may sleep seven or eight hours, but often he will waken after midnight with a dull, achy indefinite pain back of the mastoid, which he does not always narrate, but admits on questioning. With the history of continued discharge, of septic appearance of the patient, of increased leukocyte count, the bacteriologic findings in the aural secretion, clearly there is mastoiditis and it is proper to open the mastoid.

Then we have the class of case that we designate anomalous, in which there has not been any discharge from the ear at all, but some aural affection has been going on for quite a while and symptoms have arisen that are not always clear. There often is doubt, but if, with all these symptoms, and with all the tests that we are now able to make, we still have some doubt, it is undoubtedly good surgical practice to perform an exploratory operation.

There are cases in which the differential diagnosis is most important of all. For example, it sometimes is difficult to distinguish between so simple a thing as otitis externa and mastoiditis. I have recently seen such a case.

DR. GEORGE W. MACKENZIE, Philadelphia: In looking over the classical indications we find mentioned pain, temperature, local tenderness, canal signs, bacteriologic examination, amount of discharge, duration of discharge, and so forth. Now, as mentioned by Dr. Barnhill, there are cases in which the temperature runs normally, where there is no tenderness present, where there are practically no canal signs, where the bacteriologic examination of the discharge is impossible because of an intact membrane. These are atypical cases, and are prone to occur in those instances in which the external corticalis is so thick that it is quite impossible for the external periosteum to become affected; hence there occurs no tenderness. In those cases with very thick and resistant external wall we find the greatest variety of complications. How are we to recognize the presence of pus in the middle ear and mastoid in this class of cases, and especially when the membrane is intact? Let us look at the right normal membrane; the anterior margin of the hammer handle is quite sharp, while the posterior margin is not so sharp, because it lies more deeply and not in contact with the membrane. Furthermore, in the case of a normal membrane we are able to distinguish more or less distinctly the long process of the anvil. In the presence of fluid in the cavity, this is not seen. Furthermore, the normal membrane is highly polished and reflects a brilliant cone of light. In the case of secretion behind the membrane, the membrane is rough on the surface, so that we get a dull reflex; there is narrowing of the hammer handle, as the posterior edge of the hammer is obscured by the opaque secretion. An incision of the membrane in these cases will usually permit of the escape of secretion sufficient for bacteriologic examination.

Two other points I would like to mention. A long time ago I was taught that in case of doubt one should operate. Since then it has become axiomatic with me, so that I might say in nine cases out of ten one will be rewarded by finding sufficient evidence to have warranted the operation. The other point is that if one decides to operate, the operation should be done thoroughly, for in those cases terminating fatally, the necropsy shows that all the sources of infection had not been reached at the time of the operation.

DR. GEORGE F. KEIPER, Lafayette, Ind.: Dr. Dench has given us all the means of diagnosis which we ordinarily use, but there is one which he did not mention, and that is the transillumination of the mastoid by the use of the closed speculum with a window in its side near its tip. This is of great value in arriving at our diagnosis of the condition of the mastoid. I would not, however, rely absolutely on the speculum in order to decide as to the extent of the inflammation. Here comes the question of exploratory operation. Sometimes the otologist is undecided whether to make an exploratory operation. The abdominal surgeon does it every day and feels justified. Why should not we do the same thing? It is an axiomatic conclusion which they have come to—when in doubt they make their diagnosis clear by an exploratory operation, and it is true that 50 per cent. of the patients operated on at the great Mayo clinic are not diagnosed at all until the abdomen is opened.

I want to mention a case in which an exploratory operation was perfectly justifiable. This patient came in complaining of intense tenderness back of the ear. This was before the day when we directed so much attention to pyorrhea alveolaris. I observed the case closely, made a blood examination and had roentgenograms made, and finally, with all the symptoms of a classical case of mastoid trouble, I recommended an exploratory operation. We found an absolutely clear mastoid. What was the matter? We were somewhat chagrined, and yet we had guarded ourselves by saying that this would be an exploratory operation. A few days after that one of the first articles on pyorrhea alveolaris came out, and after reading it I went to this patient and had his teeth examined, and had one tooth extracted, and in a few days the trouble promptly cleared up. In other words, some of our mastoid cases may be due to conditions within the mouth and our examination of our patient should not be complete until we have used all the means of diagnosis to which attention has been directed.

DR. C. R. HOLMES, Cincinnati: I agree that the limit of ten days is all that we should give in mastoid trouble where the symptoms continue as indicated by Dr. Dench. I have taken occasion to experiment by making an exploratory operation early, even down to the third day, and have found that the mastoid was involved, at that early date, although the symptoms were not positive enough for operation. There is no doubt that the mastoid is involved in a very large percentage of all acute ear infections, just the same as the nasal sinuses are involved. We know that in many cases the passage from the middle ear to the antrum is very large. In cases like that the drainage will be free and the trouble may clear up without operation. But we have cases in which there is a small opening, where the mucous membrane itself is closed off, and bacteriologic infection goes on; then, of course, a different procedure will be indicated. The point I wish particularly to call attention to is that early exploratory operation with ordinary aseptic precautions is free from danger and should be performed.

DR. E. B. DENCH, New York: With reference to Dr. Barnhill's remarks, I think sleeplessness is a good point. A patient may present no other symptoms indicative of involvement of the mastoid except that he does not sleep well. In my experience that has been almost always indicative of extradural abscess. It is not invariable, but still it is a valuable symptom.

I am glad the discussants have spoken so favorably about exploratory operations. I think we should perform them more frequently than we do. Dr. Barnhill spoke of the differ-

ential diagnosis between an otitis externa and mastoiditis. I think often the Roentgen ray will clear up the diagnosis.

What Dr. MacKenzie said about the luster of the membrane is perfectly true. In almost all cases that is one of the classical symptoms. The lusterless drum is as surely indicative of acute otitis as the red drum. One discussant spoke of secretion in the middle ear and incision of the drum membrane for diagnostic purposes. The presence of fluid in the middle ear can be determined by catheter inflation quite as well as by incision. In these doubtful cases also, the Roentgen ray will clear up the diagnosis.

As to transillumination, I do not think it is of any use at all. The Roentgen ray does give valuable information, and I think any man would hesitate to operate because the transillumination was cloudy, if he did not confirm that by the Roentgen ray. In all cases in which I have performed operations of this kind and found pus, the Roentgen ray has told me it was there.

As to the teeth in connection with this trouble, I remember that one of my medical students was extremely angry at me because I would not operate on his sister for mastoiditis because she complained of a pain in both ears; but I sent her to a dentist and he found two impacted wisdom teeth. The teeth certainly constitute an important factor in these cases, and I think we should clear them up before we perform any operation. I quite agree with Dr. Holmes as to early operation. I have operated on the second day. It is my experience that in an operation on the mastoid I get more rapid healing if I operate after the cells are thoroughly involved, than if the patient is operated on earlier.

TYRAMIN AS AN ADJUNCT TO MORPHIN IN LABOR *

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The employment of morphin in labor has become frequent in recent years, probably owing to the "twilight sleep" propaganda more than to any other influence. Briefly, morphin exhibits in this connection three important effects, the first desirable, the other two untoward, namely, analgesia, respiratory depression in the child, and delay of labor.

It is unnecessary to review in detail the interesting history of scopolamin-morphin anesthesia, including its rather haphazard introduction by Schneiderlin,[1] its development in obstetrics by the untiring enthusiasm of Gauss,[2] and its modification by the pharmacologic critique of Bürgi[3] (pantopon [pantopium hydrochloricum]), and of Straub[4] (a morphin-narcotin mixture, used by Siegel,[5] Libby[6] and others). Today its practice, so far as justified, is limited to a few who are fortunate enough to possess the combination of unusual facilities and almost superhuman patience.

Since Hatcher[7] seven years ago pointed out the almost complete lack of theoretical justification for the employment of scopolamin in this connection, little if any new evidence has been introduced in its favor, nor has our knowledge of its obscure pharmacology been very appreciably increased. This is due in part to unusual difficulties, especially the varied manifestations of scopolamin action, not only in different species but also in different individuals. The unstable character of the alkaloid has further increased the confusion.

In our laboratory, attempts have been made to throw more light on the relation of scopolamin to the three actions of morphin enumerated above.

To study the cerebral effect, Dr. J. F. Cobey has made a number of experiments on mice by the method of Führer[8] and found evidence of some synergic action of the two drugs in this respect, supporting the results of Kochmann,[9] Bürgi[10] and their pupils. The respiratory effects of the scopolamin-morphin combination were tested by Dr. L. L. Maurer on an extensive series of rabbits, but we failed to convince ourselves that morphin depression of respiration is constantly affected by its combination with scopolamin. In a small number of cases the depression was delayed or preceded by acceleration.

Finally, as regards the action of scopolamin and morphin on the uterus itself, Mr. N. H. Copenhaver[11] and I were able to show no effect of either or both drugs on that organ, either isolated or in intact anesthetized animals, in doses at all comparable to those which are employed clinically. In unanesthetized animals, however, we[12] were able to show ultimately that small doses of morphin, by an effect definitely located in the cerebrum, tend to inhibit the rhythmic action of the uterus. This point has not been followed with respect to scopolamin.

From the results noted above it will be seen that we could contribute no new theoretical considerations in support of the employment of scopolamin-morphin anesthesia.

The value of morphin itself in labor has, however, been acknowledged by those best fitted to pass judgment. In view of this it would seem that a substance having actions more clearly understood and more desirable than those of scopolamin might be found which could be suitably combined with morphin. Particular effort should, of course, be directed to antagonizing the two most untoward effects of morphin.

The use in this connection of tyramin (para-hydroxy-phenyl-ethyl-amin hydrochlorid) or some related substance was suggested by the studies of Bry.[13] She pointed out the rather prolonged respiratory effect which tyramin and other phenylethylamin derivatives produce in mammals, and called attention to their oxytocic action which, however, had been noted by Dale and Dixon[14] in their studies of tyramin. Thus the two desired effects, respiratory and uterine stimulation, are exhibited by one substance.

Tyramin is an active principle of ergot, being derived by bacterial action on tyrosin-containing proteins. Its power to raise the blood pressure (associated with a close chemical relationship to epinephrin) has been made use of in therapy in connection with shock, for example by Clark[15] and Hoyt.[16] This point deserves more attention because of the advantages which this substance possesses over epinephrin in

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eliciting a more prolonged response and in lending itself readily to subcutaneous injection.

In seeking a morphin antagonist we first investigated a series of phenylethylamin derivatives in the hope of finding one even more suitable than tyramin. Dr. L. H. Nahum found, however, that tyramin hydrochlorid is but one tenth to one fifth as toxic as the hydrochlorids of phenylethylamin itself, and its simpler benzyl derivatives (kindly prepared for us by Prof. T. B. Johnson of Yale).

Adopting tyramin, therefore, as the most promising substance available, Dr. Cobey studied its effect on morphin narcosis in mice, and concluded that any influence which it might have on the cerebral action of this drug was probably negligible.

Dr. Maurer[17] then investigated the respiratory volume and the condition of the respiratory center in rats subjected to various doses of tyramin and morphin, alone and combined. He was able to demonstrate very clearly an antagonism between the two substances which was best exhibited when they were administered in the ratio of approximately three parts of tyramin to one of morphin. Most significant was the observation that the respiratory action of the morphin often remained in abeyance during a period when marked analgesia was present.

We next transferred these studies to man, and have, in collaboration with Dr. W. C. von Glahn,[17] corroborated the antagonism in five normal individuals. We concluded that doses of from 40 to 50 mg. of tyramin administered simultaneously with a therapeutic dose of morphin (16 mg.) will completely antagonize the depressant action of morphin on the respiration. The respiratory stimulation produced by tyramin is probably indirect and due to an augmentation of oxidative processes, for the drug has a tendency to increase the respiratory exchange.

The uterine action of tyramin, which has been elicited in laboratory animals by Dale and Dixon,[14] Guggenheim[18] and others, was first demonstrated on the excised human uterus by C. C. Lieb.[19] Hitherto it has not been satisfactorily investigated in the obstetric clinic. Heimann,[20] Zimmermann,[21] Jäger[22] and Krosz[23] all employed doses which were far too small (maximum 2 mg.) to be effective. In the last three cases the issue is confused by the combination of tyramin with histamin. Even Kehrer's[24] employment of from 10 to 20 mg. intramuscularly, and Sharp's[25] use of 30 mg. subcutaneously may scarcely be considered a fair test.

The employment of tyramin-Roche in effective doses as an adjunct to morphin is now under investigation by Dr. C. L. Deming on carefully selected cases of normal labor in the obstetric clinic of Dr. J. M. Slemons at Yale. The number of cases thus far has been too few to justify broad statements. It may, however, be said that the laboratory data are being well corroborated. The dosage employed is 16 mg. of morphin sulphate given hypodermically in solution with 40 mg. of tyramin. In the absence of contraindications, this injection is given when discomfort becomes marked in the first stage of labor. Analgesia appears to be as complete as though the same dose of morphin were given alone.

The respiratory rate of the mother becomes slightly increased rather than decreased, and usually remains somewhat accelerated throughout. The condition of the children has been quite satisfactory, no tendency to asphyxia having been observed. In every case the frequency of the uterine contractions has been increased within five minutes after the injection, and this augmented activity maintained throughout. The increase has usually been from five minute intervals to intervals of about two minutes with an augmentation, temporarily at least, in the strength of individual contractions. Forty mg. of tyramin produce a temporary rise in blood pressure usually amounting to 20 to 25 mm.; this seems to be negligible in normal cases, but should be borne in mind and followed closely.

It is hoped that more complete data can soon be offered, but there seems in the meanwhile no objection to the employment of tyramin and morphin by those obstetricians, and only those, who are thoroughly versed in the use of morphin in labor.

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A STUDY OF LOW BLOOD PRESSURES ASSOCIATED WITH PEPTONE SHOCK AND EXPERIMENTAL FAT EMBOLISM *

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Two very widely used methods of inducing a condition of low blood pressure in animals, simulating that observed in surgical shock in man, are peptone poisoning and fat embolism. It may not be amiss at this time to emphasize certain fundamental differences in the character of the low blood pressures brought about by these two methods. The details of the experiments which have been made on dogs in this laboratory will be published later.

1. After the injection of peptone, the fall in the blood pressure is very rapid, the lowest level being reached usually within thirty seconds. In fat embolism, even when relatively large amounts (up to 50 c.c.) of olive oil are rapidly injected into the femoral vein, the fall in blood pressure is much more slow, frequently requiring several minutes to reach the minimum.

2. If a nonfatal dose of peptone has been injected, recovery of the animal and the rise of blood pressure to its normal level are much more rapid than in the case of fat embolism, even when small amounts of olive oil are used.

3. In fat embolism, the toxic effect of ether appears to be markedly intensified. The continued administration of an amount of ether which, before the production of fat embolism, just suffices for thorough general anesthesia, causes, after the injection of olive oil, the respiration to become increasingly shallow and slow. Unless the ether is greatly reduced in amount or withdrawn entirely for a few minutes, the animal quickly dies of respiratory failure while the heart action is still relatively strong. This phenomenon has not been observed in peptone shock.

4. In peptone poisoning, the greater part of the blood is accumulated in the liver and in the veins of

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the splanchnic area. The right side of the heart is not distended with blood. In fat embolism, on the other hand, the right auricle and ventricle are dilated. There is a general venous stasis. The accumulation of an excessive amount of blood in any one region or organ is apparently due largely to the effect of gravity. Thus, if the foot of the board to which the animal is fastened is elevated, the intracranial sinuses are found at necropsy to be greatly distended with blood. This can be demonstrated by attempting to remove the brain before opening the thorax and abdomen.

This difference in the distribution of the blood in the body is to be expected. In peptone shock, the low blood pressure is due to a loss of tonus in the vessels of the splanchnic region, the vascular area of the lungs being undiminished. In fat embolism, the passage of the blood through the lungs is mechanically interfered with, the vascular tonus in the splanchnic region and elsewhere remaining normal.

5. Edema of the lungs appears to be a fairly constant accompaniment of fat experimental embolism, but has not been encountered in any marked degree in peptone shock.

6. In previous papers,[1] attention was called to the exaggerated reaction to nicotin frequently observed in dogs in peptone and anaphylactic shock. This marked rise in blood pressure was obtained only when the nicotin caused a temporary dyspnea. It was suggested in explanation of this phenomenon that the rise was due to the mechanical effect of respiratory suction on the reservoir of blood in the liver, and not to any direct action of the nicotin on the vasomotor apparatus itself. It was also suggested that this mechanical effect of dyspnea might be of value in the treatment of any condition of low blood pressure in human patients in whom there was a large reservoir of blood in the liver. Blood accumulated in this organ can be drawn into the right side of the heart by respiratory suction because the veins involved do not readily collapse. The walls of those in the liver are better supported than those in the neck, for instance. The distance between the right auricle and the point of entrance of the hepatic vein into the inferior vena cava is short. The vena cava here is wide, and its walls are supported and prevented from collapsing by the central tendon of the diaphragm through which it passes and to which it is attached.

Porter[2] has observed that in fat embolism, the induction of deep and rapid respiration brought about by increasing the carbon dioxid in inspired air leads to a rise in blood pressure of from 15 to 30 mm. of mercury. Although I have not used carbon dioxid, I have, in a number of experiments, observed such a rise in blood pressure when the rate and depth of respiration were increased from any cause.

Hence in both peptone poisoning and experimental fat embolism, dyspnea causes a rise in blood pressure. But there are certain important differences in the character of the rise in the two conditions. 1. In peptone shock, the rise is sharp, and the pressure tends to drop almost to its former low level as soon as the respiration becomes normal; in fat embolism, the rise is gradual and more sustained. 2. In fat embolism, the same rise in blood pressure is seen as a result of the rapid respiration, which can hardly be called dyspnea, that follows removal of the anesthetic and the partial recovery of the animal from its effects. 3. A rise is also readily induced by vigorous artificial respiration by means of a bellows, an operation which actually produces a positive intrathoracic pressure. Neither of these methods has produced a rise in pressure in any animal in a condition of peptone shock.

In view of these marked differences in the character of the rise in blood pressure that follows the induction of dyspnea in peptone shock and experimental fat embolism, respectively, it may be suggested that the mechanism in the two cases is quite different. The probable mechanism in peptone shock has been set forth in the papers referred to.[1] There is evidence, which will be presented in detail later, that, in fat embolism, dyspnea and vigorous artificial respiration (with a bellows) act by aiding in the mechanical dislodgment of fat droplets from the capillaries of the lungs. This increases the vascular area available for the passage of blood from the right to the left side of the heart and thence into the general circulation. This may not always be an unmixed advantage, however, for it may lead to fat embolism of the brain, and death.

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SERUM THERAPY FOR TRICHINOSIS*

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In a recent paper, Salzer[1] records some observations and experiments with reference to trichinosis. Among other things he reports successful results with serum therapy and states emphatically that the injection of immune serum has both a prophylactic and a curative value. Briefly stated, Salzer's claims with respect to "immune serum" are as follows:

1. Animals fed with infected meat later than twenty-four hours after the administration of serum from a convalescent animal prove to be immune.
2. Infected meat mixed with immune serum does not produce trichinosis in animals to which it is fed.
3. Immune serum injected into animals suffering with the disease produces a curative effect.

The first two statements are fairly clear and easily subject to experimental verification. The last statement is obscure. One might suppose a curative action would involve destruction of the parasite. The author, however, does not indicate that the parasite itself is destroyed, and rather gives the impression that the curative effect is to be judged by the disappearance of the principal symptoms of the disease, a criterion not yet shown to be applicable in cases of experimental trichinosis.

In order to procure data on the effects of supposed immune serum on the resistance of animals to trichinosis, I performed the following experiment:

Serum was obtained from a rabbit about four months after the disease had been experimentally produced. A postmortem examination of the animal after the drawing of the blood revealed a moderate infection with encysted trichinae. The blood drawn from the rabbit was placed in an ice-box, and on the following day two guinea-pigs were injected subcutaneously with 1 c.c. and 2 c.c. of the serum, respectively. Forty-eight hours after the injection, the animals were for-

* From the laboratory of the Zoological Division, Bureau of Animal Industry, United States Department of Agriculture.

1. Salzer, B. F.: A Study of an Epidemic of Fourteen Cases of Trichinosis with Cures by Serum Therapy, THE JOURNAL A. M. A., Aug. 19, 1916, pp. 579, 580. Salzer also presented a report of his experiments at a meeting of the New York Academy of Medicine, the minutes of which are published in the Medical Record, New York, 1917, **91**, 261.

cibly fed small quantities of trichinous meat. A salad consisting of lettuce and infected meat was also fed the following day. Fifteen days after the first feeding one of the animals was killed, and its diaphragm was compressed between two thick slides and examined microscopically. Numerous larvae were found in the fluid surrounding the muscle, showing conclusively that the serum had no effect on the normal migrations of the larvae. The second guinea-pig was killed twenty-nine days after the first feeding, and the muscles were found to be heavily infested.

Another experiment bearing on the prophylactic effect of immune serum was performed as follows:

Blood was drawn from a guinea-pig two months after the first feeding with trichinous pork. After the drawing of the blood, the animal was examined and the musculature found to be heavily infested. The day following the drawing of the blood, 2 c.c. of the serum were injected subcutaneously into a sound guinea-pig. Two months later this guinea-pig was fed trichinous meat. The animal died twenty-one days after feeding, and on examination the muscles showed a heavy infestation with the parasites.

From the foregoing results it is evident that the administration of serum from a convalescent animal did not produce any prophylactic effects, but, on the contrary, animals after injection with serum readily became infested when fed trichinous meat, and the life cycle of the parasite did not deviate from its usual course.

In order to determine whether "immune serum" has any effect on the development of the parasites when administered after the feeding of trichinous meat, the following experiment was performed:

Two guinea-pigs were fed trichinous meat, and two days after feeding, injected subcutaneously with 1 c.c. and 2 c.c. of serum, respectively, from the rabbit mentioned in the first experiment. The serum was injected three days after the drawing of the blood from which it was obtained. It was kept in an ice-box until used. One of the animals died twenty days after the feeding, and its muscles were found to be heavily infested with trichinae. The second animal was killed thirty-one days after feeding, and yielded similar results.

If Salzer's contention with regard to the prophylactic value of immune serum is to be sustained, it would seem that animals convalescent from the disease should not be liable to a fresh infection.

I exposed rats suffering with trichinosis to a supplementary infection by feeding them a second time with trichinous meat about thirty-five to forty days after the first feeding. In order to make absolutely certain that there would be no confusion between the parasites of the first and second infection, the animals were killed within five days after the second feeding, and the intestinal contents were examined. In all cases it was found that the parasites of the second infection had increased in size, and in some cases had already copulated, and that the uteri of the females were full of eggs. The intestinal parasites from the first infection could readily be distinguished from the more active younger parasites by their sluggishness, and by the presence of larvae in the uterus of the females.

Salzer's contention that infected meat mixed with immune serum does not produce trichinosis in animals to which it is fed was tested a number of times, serum being used from animals at various stages of the disease. The experiments are described below:

EXPERIMENT 1.—A guinea-pig was bled fourteen days after an experimental infection with trichinosis. A postmortem examination revealed numerous parasites in the blood. The serum from the blood kept over night in an ice-box was thoroughly mixed with trichinous meat and lettuce in the form of a salad and fed to two guinea-pigs. The animals were killed a month after feeding, and though one was negative, the other showed a very heavy infestation. As the two animals were kept in one cage, one of them probably failed to eat any of the salad and thus escaped the disease.

EXPERIMENT 2.—Twenty days after experimental infection, blood was drawn from a rabbit and mixed with trichinous pork. Subsequent postmortem examination of the rabbit revealed a heavy infection. The meat mixed with serum was fed to two rats, one of which died nineteen days after feeding and was found to be heavily infested. The second rat died fifty days after feeding and was likewise found to be very heavily infested.

EXPERIMENT 3.—Serum was obtained from a rabbit seven weeks after infection and after it was kept over night in an ice-box was mixed with trichinous meat. Subsequent postmortem examination of the rabbit revealed a heavy infestation. The meat mixed with serum was fed to four rats kept in one cage, and only one of the rats became infected. This one showed a very heavy infestation. The negative result with the other rats, as in the case of the guinea-pigs referred to in Experiment 1, was probably due to a failure to eat the meat.

EXPERIMENT 4.—Serum was obtained from a guinea-pig two months after experimental infection, and, after it had been kept over night in an ice-box, was mixed with trichinous meat. Subsequent postmortem examination of the guinea-pig revealed a heavy infestation. The meat mixed with serum was fed to three rats, all of which became infested.

In the foregoing experiments it was found that serum from an animal during the active stage of the disease, or during convalescence when mixed with trichinous meat which is fed to a suitable host, had no effect on the parasites and did not interfere with their developmental cycle. This appears to be directly contrary to Salzer's assertion that trichinous meat mixed with immune serum fails to produce trichinosis.

The direct effect of serum on the larvae was tested a number of times. Trichinous meat was subjected to artificial digestion, and the parasites freed from their cysts were washed in a physiologic sodium chlorid solution, taken up in a capillary pipet and placed in pure serum and in mixtures of serum with various physiologic sodium chlorid solutions. In no case did the serum have any ill effect on the larvae as far as could be ascertained by direct examination. When kept at room temperature, the larvae in the serum succumbed more readily than larvae kept in a 0.7 per cent. sodium chlorid solution, but this was undoubtedly due to the development of bacteria in the serum. The results were similar with "immune" and normal serum. When subjected to a higher temperature (37 C.) in an incubator, the larvae in the serum and salt solution mixture showed even greater resistance than the larvae in a salt solution without serum, and were still alive and active when the latter were dead. This was doubtless due to the more favorable environment offered by the serum and salt solution mixture.

SUMMARY

1. Serum from animals convalescent from trichinosis when injected into other animals did not produce immunity to trichinosis in the latter.

2. Trichinous meat mixed with serum from animals during the active or convalescent stage of the disease proved to be still capable of producing the disease.

3. Animals once infected and harboring trichinae in their muscles were not immune to further infection when fed trichinous meat.

4. Serum from a trichinous animal had no observable ill effects on the larvae freed from their cysts by artificial digestion.

5. None of the results of the experiments appear to be in harmony with the assertions made by Salzer (1916, 1917) concerning the value of serum from convalescent animals as a prophylactic or curative agent in trichinosis.

THE NECESSITY OF A PURE RAW MILK *

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Goethe once remarked that blood is a very peculiar juice. We can say the same of milk. Modern physiologic researches have shown that certain glands and secretions of the body have much larger functions than have hitherto been assigned to them. We need only refer to the internal secretions of various glands, formerly unrecognized, that are now known to exert a marvelous influence not only on physical life, but on mental development as well.

These facts have led us to give a closer scrutiny to the more familiar fluids of the body, of which milk is one of the best known, as it constitutes the universal food for the young of all mammalia. From a nutritional standpoint it is recognized as a complete food, containing in itself all the elements required to support life.

While each species of mammalian young is perfectly nourished by the milk of its own mother, the food elements are present in varying proportions in different species, this depending largely on the rapidity of growth of the offspring. But milk is a complicated fluid, with more than one function to perform. This must always be borne in mind when heat or other agents are brought to bear on it. *As a general rule, the less milk is manipulated and the closer it is kept to its natural state, the better it will serve the ends for which it is intended.* Any factor that tends to alter in any way the physical or vital character of milk must be considered as important, and possibly, under certain conditions and in certain ways, may not be of advantage. Some of Nature's foods are evidently intended to be taken in a raw state, as is shown by a certain failure in nutrition which follows when they are subjected to prolonged drying or heating.

There is one familiar but remarkable characteristic of all milks. When collected from the mother they are always in fluid form, but as soon as taken into the stomach of the young, they become more or less solid. This is due to a process of coagulation that takes place in only one of the ingredients—the casein—but which thus always alters the form of the ingested milk. While the carbohydrates and fats in their composition and reaction to the digestive secretions are a good deal alike in different milks, the proteins are essentially different. It is further to be noted that coagulation of the protein of milk takes place in different degrees in the different species.

We are now led to two queries: (1) What is Nature's object in presenting a fluid that always coagulates in the stomach receiving it, and (2) Why do the milks of different species coagulate in different ways? An answer will be found in studying the relation between the milk and the digestive tract that is destined to receive it. While a certain portion of the protein of all milks coagulates on coming in contact with rennin or rennin and acid, the manner and extent of the coagulation will stand in a direct relation to the proper evolution of the digestive tract of the animal.

Although there are many grades of coagulability in the milks of different animals, we may for practical purposes distinguish three of these grades and consider their significance. The protein may coagulate in a solid, gelatinous or flocculent manner. In the ruminant, herbivorous animals, such as the cow, sheep or goat, the protein coagulates in tough, solid masses that cannot readily escape from the stomach. In these animals, digestion is always largely gastric and the stomach forms 70 per cent. of the digestive tract. Later on, this stomach will be called on largely to digest tough, stringy masses of hay and straw, and the previous exercise on the tough curds of milk develops it for this future work.

In the nonruminant herbivora, such as the mare and the ass, the protein coagulates in gelatinous masses that can easily leave the stomach. There is an object in thus passing the curds quickly along, as in this class of animals digestion is largely intestinal, and the intestine forms about 90 per cent. of the digestive tract. Later on, grasses and grains must be largely digested in the intestinal portion of the tube, and the curd is here also especially adapted to develop a certain part of the intestinal tract for its future work.

In human milk the curd is thrown down in flocculent masses, a form intermediate between the solid and gelatinous types of curd previously noted. While digestion begins in the stomach, it is largely carried on and completed in the intestine, and the stomach forms only about 20 per cent. of the digestive tract. The curd is thus adapted to start the development and motility of the stomach, and finishes by instituting these functions in the bowel, which is destined to play a prominent part in digestion. Here again the curd, as far as *form* is concerned, furnishes, to a certain extent, an analogue and precursor of the future food of the infant. The curd forms small, flocculent masses, and the food must be separated later into small particles by chewing before digestion can take place to the best advantage.

It thus seems to be a law that the coagulation of the protein of milk always takes place in such a manner as most readily to adapt the digestive tract for its future work, as this function needs special preparation. While a certain amount of protein is present in the milk of all animals and is necessary for tissue building and growth, this protein must not only be coagulable, but must curd in a certain specific way in each species of animal for the proper evolution of their digestive tracts.

To realize what a divergence in the digestive functions has been taking place during the suckling period, imagine an infant, a kitten and a calf all being fed successfully on cow's milk. Here it is evident that at the very beginning of life the difference in their digestive processes is not very great; but wait a year until all three have passed the suckling period. The infant will be just beginning to eat soft food, the kitten will have developed so that it can eat flesh and bones, and the calf will be thriving on grass and hay. In one short year the development and divergence of their digestive tracts has been so great that the natural food of the calf is then wholly unsuited to the kitten or the infant, yet the chemist will find that the food of all three at this time contains the same basic nutritive elements as

* Read before the American Association of Medical Milk Commissions, Brooklyn, June 2, 1917.

it did at birth. Milk is thus a food especially adapted for a digestive tract that is rapidly changing in form and function, and the differences in the digestive properties of the milks of various species are for real and specific purposes.

As nutrition is the basis of all physical life, we see how important a function milk performs at the very beginning of existence in developing and preparing the digestive tract of each species so that it can digest and assimilate food that must nourish it in later life. We must thus emphasize the fact that milk through one of its proteins has a *developmental* as well as a nutritive function to perform.

In addition to the curding protein, an interesting fact in reference to the other protein of milk has recently been discovered: that lactalbumin has the power of increasing the efficacy of other proteins when combined with them. This forms another example of the power of one physiologic substance to activate another.

Since the discovery of the importance of the amino-acids, whose combination forms the various kinds of proteins, much study has been devoted to investigating the part each one plays in nutrition. It has been found that the albumin of the milk contains substances which cause growth, and that as small a proportion as 25 per cent. of milk albumin added to a protein that does not produce growth has the power of inducing normal growth, while one-half casein is incapable of producing such normal growth. It is important to appreciate the recent discovery that not all proteins are growth producers. Thus lysin and tryptophan are amino-acids essential to growth, which will not take place in their absence. Corn proteins will not in themselves produce growth. The astonishing fact has been established that of two mixtures containing the same quantities of protein and the same number of calories, one may produce twice the amount of growth in the same time that the other mixture will produce, if from one fourth to one third of the mixture is milk albumin. Soy bean protein and milk albumin are nearly alike in this growth-producing effect.[1]

We must recognize the fact that "protein" is an indefinite term and that the same amount of protein and the same number of calories from different sources may have very different food values, and that the form or physical condition of the food may at times be as important as its composition and caloric value. It has been found that young animals cannot thrive unless their food has a certain bulk, and the food on which the young not only fail to do well but which causes death quickly becomes suitable if wet blotting paper is fed with it. In other types of animals, chopped straw added to the feed produces the same good effect.

In the giving of cow's milk to infants as a substitute food, we must consider the physiologic effects of any changes that may be effected by heat or other agents. Milk is a physiologic fluid, not merely a mixture of fats, proteins, carbohydrates, mineral matter and water, or a combination of protein matter and calories. As more is learned of its properties, the greater will be the demand for raw milk in the treatment of various nutritional defects. We must always remember that physical changes may interfere with some physiologic function. Pasteurization of milk, or boiling it, not only destroys bacteria but also produces a different type of curd and changes the form of the lactalbumin. These results may be beneficial, or at least not harmful in many cases, but physicians are called in to manage the minority that frequently require special adaptation of their food, and it is for just such cases that a supply of good raw milk may be of benefit. The effect of heat on the curd will depend on the temperature, and time of subjection to various degrees of heat. Prolonged heat may not only coagulate the albumin but also destroy the vitamins. For this reason it is wise to add fruit juices to the diet when heated milk is given to the infant for a long time. Many babies who do not thrive, or cease to thrive, on heated milk do well on a change to raw milk.

The desirability of pasteurizing milk that is handled carelessly or in large bulk is not here called in question. It is a safeguard that should be generally applied. While the mass of population is entitled to a supply of milk for ordinary household purposes that is free from contamination and from pathogenic bacteria, and while heating or pasteurizing milk will destroy these bacteria, it is going much too far to insist that all milk shall be thus treated and that no raw milk shall be available for use because it may be dangerous under some circumstances. Granting that raw milk may become dangerous, it does not necessarily follow that it may not be employed with advantage, or that its use may not be properly controlled.

It is true that the best raw milk can be quickly contaminated by careless handling in the home. The same is true, only in greater degree, of pasteurized milk. A false sense of security may lead to absence of all precautions, and very harmful changes may take place in such milk without any very objectionable manifestations, such as souring, to give warning of the change. In not a few cases there is no proper oversight of pasteurization, which may be very imperfectly performed and the protection may thus exist largely in name only. The medical profession and the milk producers and dealers should combine in a campaign of education of the public as to the proper handling of milk in the home. This would in itself solve a good part of the milk problem. The housewives should be impressed with the necessity of keeping milk of all grades both cool and clean. The importance of this subject should be emphasized by this association, as the full benefits of certified milk will not be obtained unless extra care is employed all along the line.

Many of the data regarding the necessity of pasteurizing all the milk supply have been derived from European sources. Ice has always been scarce in Europe, and hence the icing of milk is not the usual practice. Milk is thus unfit to give unless heated, as this is the only practical way of keeping it. Milk that is clean and cool from the start and kept in this condition until it reaches the consumer is a different proposition. There is a large and widening field for milk produced and handled in this way. It occupies a field of its own that cannot be displaced by any other kind of milk.

The constantly broadening knowledge of nutrition that is resulting from chemical studies and from animal feeding experiments should be a warning against passing laws that will prevent progress, and no regulations should be tolerated that will put normal, physiologic milk beyond the reach of physicians and the public at large. Certified milk, produced with scrupulous care, under the oversight of a reliable medical commission, and then properly handled in the home, is the ideal solution of the milk problem, at least as far as the delicate infant or invalid is concerned.

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A CASE OF SYRINGOMYELIA

WITH REPORT OF OPERATION *

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History.—J. P. M., man, aged 35, American, a clerk by occupation, whose mother died of carcinoma, denied venery and alcoholism, and does not remember of having been ill.

Fig. 1.—Anterior aspect before operation: dark shading, loss of pain and temperature sense; light shading, hypalgesia and thermhypesthesia.

Fig. 2.—Posterior aspect before operation: dark shading, loss of pain and temperature sense; light shading, hypalgesia and thermhypesthesia.

In 1905 he was thrown heavily to the ground in a football game, being rendered unconscious for sixteen hours and sustaining a fracture of the right femur. There was no escape of arachnoid fluid from the ears, nose or mouth. After having been eight weeks in bed and attempting to get about, he noticed that he could not walk on account of a paretic condition in his legs. At that time there was no subjective sensory disturbance in the lower extremities. Soon, however, a numbness and tingling sensation made their appearance in the upper extremities and back of the left ear. There was no perceptible impairment of the motor power in the upper extremities. The paresis in the legs improved within a few days, and the sensory disturbances in the arms disappeared within two months, while that behind the left ear remained, and still persists. In this fair condition of health he remained until 1910, when paresthesias in the arms appeared, culminating soon in complete loss of sensation, gradual loss of power, with wasting, especially in the muscles of the forearms. During 1911 he had a series of six epileptiform seizures within two days, with complete loss of consciousness and biting of tongue. No aura preceded the attacks. So far as the patient is able to learn, the attacks were generalized throughout the whole body. The convulsions lasted from ten to fifteen minutes. After a week's interval he again had an attack and one week later another one, similar to the original ones. Immediately after these attacks he became hypersensitive to touch and pain between the shoulders. The numbness, wasting and loss of power in his arms gradually grew worse till 1914, when he became completely paralyzed in both upper extremities. Early in 1915, a motor weakness manifested itself in his legs, his gait became somewhat spastic and staggering, especially pronounced when under mental stress as a result of fright. He would then experience great difficulty in walking. Yet there was no subjective sensory disturbance.

Examination.—Feb. 7, 1916, he was admitted to Bellevue Hospital to the service of Dr. George D. Stewart. Examination revealed a complete flaccid paralysis of the upper extremities with considerable wasting of the muscles of the forearms; there were some spasticity and motor weakness in the lower extremities. None of the cranial nerves were involved.

The reflexes of the upper extremities were abolished; those of the abdomen and lower extremities were markedly exaggerated, and there was a double ankle clonus and Babinski's reflex.

Sensation was tested, April 24, 1916, and is outlined in Figures 1 and 2. There was complete loss of touch, pain and temperature sense in both upper extremities and chest and neck up to the fifth ribs, corresponding to the lower six cervical and first, third and fourth dorsal segments of the cord. There was also a zone of hypalgesia and hypesthesia on both aspects of the chest between the fifth and eight ribs, corresponding to the fifth, sixth, seventh and eighth dorsal segments. In addition, there was a line of marked hyperesthesia of about 2 inches in width along the vertebral columns between the sixth cervical and eighth dorsal vertebrae.

The Wassermann test of the blood serum gave five units, February 12, and negative, March 23, 1916; that of the spinal fluid was negative, March 28, 1916. The cell count of the spinal fluid was: seven cells per cubic millimeter, all mononuclears; globulin, faintly positive.

In view of these findings, a tentative diagnosis of a cord tumor was made, probably a glioma, and operation was decided on.

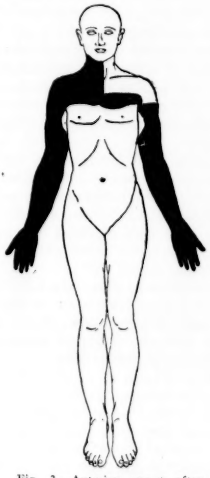

Fig. 3.—Anterior aspect after operation: dark shading, loss of pain and temperature sense.

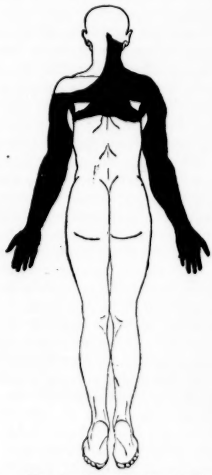

Fig. 4.—Posterior aspect after operation: dark shading, loss of pain and temperature sense.

Operation and Result.—The patient was operated on by Dr. Stewart, May 4, 1916. The central canal was found enlarged and a probe could be passed upward and downward.

The flaccid paralysis of the upper extremities still persists, but the patient is able to flex the fingers somewhat. The wasting is quite marked in the entire extremities. Otherwise the patient is physically improved. The eyegrounds are normal.

* Read before the Section on Nervous and Mental Diseases at the Sixty-Eighth Annual Session of the American Medical Association, New York, June, 1917.

The reflexes of the upper extremities are completely abolished. The abdominal reflexes and those of the lower extremities are exaggerated. There is a double ankle clonus and Babinski's reflex. The pupils are small, equal and regular; the response to light is sluggish, especially in the right pupil; accommodation is good in both.

Sensation of the anterior and posterior aspects on the right side is as shown in Figures 3 and 4. There is complete loss of touch, pain sense in the arm and the chest corresponding to the lower six cervical and first, third and fourth dorsal segments of the cord. On the left side there are complete anesthesia and analgesia in the arm and part of the chest corresponding to the lower four cervical and first, third and fourth dorsal segments. There is also a hypesthesia on the face corresponding to part of the right second cervical segment. The thermanesthesia is complete on both aspects of the neck and chest as far down as the sixth ribs.

The left pronator radii responds to a strong faradic current. All other muscles of both upper extremities do not respond to faradic current, and show a complete reaction of degeneration.

46 East Fifty-Second Street.

ABSTRACT OF DISCUSSION

DR. I. ABRAHAMSON, New York: We had a similar case at the Montefiore Home. The provisional diagnosis was a central tumor of the cord. An unusual feature of our case was the existence at the level of the lesion of an action myotonia, that is, a spinal type of myotonia. At the operation a myelomalacia was found. The cord was incised and improvement followed. The occurrence at the level of the lesion in Dr. Fisher's case of involvement of tactile and pain and temperature sensibility indicated that the lesion was at or very close to the posterior roots. Below this level the pain and temperature sensibilities alone were involved.

DR. E. D. FISHER, New York: A possible origin of this disease was hemorrhage into the cord at the time of injury, and at the site of the hemorrhage we found the beginning of the glioma later. I think without question the nerves were affected.

INTERESTING REACTIONS INCIDENTAL TO THE TREATMENT OF TWO CASES OF BRONCHIAL ASTHMA *

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It is now well known that naturally sensitive individuals give a skin test to the proteins to which they are sensitive and thus presumably have many antibodies fixed in the cells of their skin. In connection with other work done in New York in 1915-1916, Dr. Longcope and I attempted to demonstrate circulating antibodies either as precipitins or as so-called anaphylactins in the blood serum of these naturally sensitive individuals, but always with a negative result. Cooke[1] could find no circulating antibodies in the blood of hay-fever patients. Schloss[2] and also Koessler[3] succeeded in finding circulating antibodies in a case of egg susceptibility and hay-fever, respectively, and recently Walker[4] has reported the irregular appearance of complement fixing antibodies and precipitins in patients naturally sensitive to horse hair and cat hair proteins.

In view of the fact that, in the case of artificial sensitization, circulating antibodies appear immediately after the subsidence of the anaphylactic symptoms, as Dr. Longcope and I were able to show,[5] it has seemed worth while to study and report two interesting cases of natural sensitiveness in patients who, during treatment for their asthma, showed anaphylactic symptoms after injection of the offending protein, since circulating antibodies should be expected at this time if ever.

One patient was a woman of 33, who had had asthma for fifteen years. The other was a man of 39, with asthma for thirty years. In both patients the asthma came on in attacks which were often associated with contact with horses or other animals. Both patients gave markedly positive skin tests to an extract of horsehair as well as to extracts of other animal proteins. In both patients there seemed to be no other cause of asthma and they were, except for asthma, apparently normal persons. In view of the fact that their troubles were presumably due to a great excess of antibody in the cells, which fixed the offending protein to the cells and there split it to its poisonous elements,[6] it semed justifiable to attempt to reduce the number of fixed antibodies by small repeated doses of the antigen — in these cases horsehair.

This antigen was a Ringer solution extract of crude horsehair, which had been previously treated with an alcohol and ether mixture to dissolve the fat and dirt. The extract was sterilized by passage through a Berkefeld filter and was standardized by determining the total nitrogen content by the ordinary Kjeldahl method.

The woman received subcutaneously, on successive days (in terms of nitrogen content), 0.01, 0.01 and 0.02 mg. On the fourth day the dose (0.03 mg.) was introduced into the outside of the left thigh a little above the knee. Immediately following the injection a little blood appeared in the syringe so that presumably the dose had been injected into a vein, although no vein showed under the skin at that point.

Within two minutes she complained of being full and hot; within three minutes she had a definite coryza with red running eyes and flushed face, and complained of a burning, prickling sensation, especially over the head and upper trunk.

Within five minutes definite asthma began, associated with a choking sensation in the throat and an anxious, worried expression. Twelve minims of a 1:1,000 solution of epinephrin (adrenalin chlorid, Parke, Davis & Co.) was injected subcutaneously at this time, and in ten minutes afterward the asthma was much relieved.

In thirty minutes after the dose of extract the severe asthma was practically over, though there was still a little wheeze. The redness, heat and burning of the arms had become a general urticaria which spread over the arms, chest and back. In one hour the asthma had gone, the urticaria was clearing, and in an hour and a half the patient was practically normal again.

The man was given eight desensitizing doses of horsehair extract at intervals of three or four days, the doses gradually increasing from 0.006 to 0.65 mg. During this time his asthma was perhaps a little better,

* From the Medical Clinic of the Massachusetts General Hospital.

1. Cooke, R. A.: Jour. Immunol., 1917, **2**, 217.
2. Schloss, O. M.: A Case of Allergy to Common Foods, Am. Jour. Dis. Child., June, 1912, p. 341.
3. Koessler, G. L.: The Specific Treatment of Hay-Fever (Pollen Disease), in Forchheimer, Therapeusis of Internal Diseases, **5**, 671.
4. Walker, I. C.: Jour. Med. Research, 1917, **31**, 243.
5. Longcope and Rackemann: Proc. Soc. Exper. Biol. and Med., 1916, **13**, 101.
6. Weil, Richard: Jour. Med. Research, 1915, **32**, 107. Vaughan: Protein Split Products, Lea and Febiger, 1913, p. 324.

but he still had some wheezing. After the last dose he had a bad asthmatic attack which came on in five hours and lasted about twenty-four hours. His arm was swollen and red for two days.

At this point a stronger dilution of a different extract, although made up in the same way as the first extract, was used. He was given, however, in terms of nitrogen content, less than half the preceding dose — only 0.3 mg. being used.

One and a half hours after this last dose he had a large swelling on his arm and severe asthma. In three and a half hours he reported and his arm presented a large yellowish, raised, hard wheal surrounded by an areola, the whole area being approximately 12 cm. in diameter.

In ten hours the patient was found at home with the whole arm from shoulder to elbow red, swollen, brawny and itching intensely, and he was definitely wheezy.

In fourteen hours the swelling on the arm had increased and he had severe asthma, which was quite promptly relieved by epinephrin subcutaneously. He required another dose in three hours.

In twenty hours his asthma was somewhat better, but at this time he presented a marked generalized urticaria with typical lesions scattered over the arms, face, legs and back, with a few on the abdomen.

In thirty-three hours the patient had rather more urticaria with intense itching; the lymph nodes were not enlarged, and he had no joint pains. There was some asthma. Epinephrin again relieved the asthma and the itching.

On the third day he had transient, though severe attacks of urticaria and asthma lasting an hour or so.

On the fourth day the urticaria was gone and the patient felt much better, but he showed definite puffiness of his eyes and swelling of his lips, although no frank edema of the ankles or the sacrum could be made out and he had no albuminuria.

On the fifth day he had some asthma in the night, but no further urticaria. He was up on the sixth day for a short time and felt much better. Puffiness of the eyes was still present on the seventh.

By the eleventh day he was quite normal again and declared that he was almost free of asthma.

He had, therefore, passed through a fairly typical attack of serum disease.

From my previous study of serum disease[5] the appearance of antibodies would have been expected in both these patients immediately after the subsidence of their symptoms.

Twenty-four hours after the definite acute anaphylactic shock the woman was bled and series of tubes were set up containing 0.5 c.c. of her fresh, undiluted serum and 0.5 c.c. of various dilutions of the same extract of horsehair which had caused the shock. Other tubes contained 0.5 c.c. of serum and 0.5 c.c. of various dilutions of cathair extract and cat serum. After two and a half hours' incubation at 37 C. no precipitates were visible in any of the tubes, nor were any seen the next morning.

With exactly this same technic, the blood serum of the man was tested against the same antigens. The test was done twenty-five days before the "serum disease" on the first day of freedom from asthma and urticaria after the "serum disease," and again on the third day after the "serum disease" when he had had no asthma or urticaria for at least forty-eight hours. The tests were all negative, those set up after the attack showing no more precipitation than the tubes set up before any treatment had been instituted.

It is regrettable that no attempt to transfer these suspected antibodies to guinea-pigs to demonstrate passive anaphylaxis was made, and it is also regrettable that no other opportunity occurred to test for circulating antibodies on later dates.

Skin tests were repeated in both patients after the attack, and were found to be slightly diminished in intensity, but were still positive and have since remained so.

Following the acute shock the woman went home on the third day, but had an attack of asthma on the train. Since then, however, she has been distinctly better; she is still being cautiously treated with horsehair and cathair extracts. She has had no severe attacks, although she has been wheezy at times.

After his serum disease, the man remained comparatively free from asthma for the next seventeen days, when he had two bad nights, which he attributed to exposure to dogs. But during the following five months his asthma has distinctly improved; he was treated with horsehair extract during the first of these months.

CONCLUSIONS

That the asthma in these two individuals at least could be caused by horsehair protein was obviously shown. The striking and rather alarming reactions are not without significance. The acute shock illustrates well the danger which always exists in the treatment of these cases regardless of the size of dose or care of administration. The typical serum disease, with all its clinical manifestations, illustrates another danger and, furthermore, suggests a possible accumulation of the antigenic substance in the cells with explosive manifestations when this accumulation has reached a certain point.

That the woman had an attack of asthma on her way home, three days after the shock, is interesting and important. It shows either a multiplicity of causes of her asthma, or else it shows that the well known principles of antianaphylaxis do not obtain in these cases.

The immune reactions are interesting. Real conclusions cannot be drawn from such meager observations. They do, however, suggest again a difference between natural and artificial sensitization in the mechanism concerned in the production of symptoms in each.

263 Beacon Street.

State Makes New Low Mortality Record.—Returns to the New York state department of health show that despite an increase in the population in the last quarter of a century of over 67 per cent., there were fewer deaths in July, 1917, than in July, 1892. Had the rate of mortality of twenty-five years ago prevailed during the months of July, 1917, there would have been recorded in the state 12,000 more deaths than actually were recorded. The reduction in the number of infant deaths is particularly notable. From a total of 2,237 infant deaths from diarrheal diseases, in 1910, the number of such deaths declined to 1,133, in 1913, and in July, 1917, to 439 deaths, one fifth the number of deaths from this cause only seven years ago. The infant mortality rate for July was only 70 per thousand births in contrast to the July rate of 186 per thousand births in 1910. In contrast to this reduction in infant mortality is an alarming increase in the number of deaths from accidental causes, chiefly automobile accidents. Thus far this year there have been reported 5,103 such fatal injuries in the state, or 700 more than the average of the last five year period, 4,401.

SURGERY OF BONES AND JOINTS

WITH ESPECIAL REFERENCE TO THE OPEN OPERATIVE TREATMENT OF FRACTURES, AND A METHOD OF ARTHROPLASTY IN ANKYLOSIS OF THE ELBOW JOINT *

HUGH McKENNA, M.D.
President of Staff of St. Joseph's Hospital
CHICAGO

ETIOLOGY AND PATHOLOGY

The bacteriologic laboratory has shown that pathogenic organisms require special culture mediums for their growth. This is especially true of the gonococcus, which requires blood-agar for its best development artificially. Just as this organism requires special mediums for its cultivation in the laboratory, so also it shows certain points of election for tissues in the human host, particularly the subsynovial structures of the joints. The endothelium covering the

Fig. 1.—Anteroposterior view of phalanx destroyed by tuberculosis.

Fig. 2.—Anteroposterior view of the same phalanx immediately after the autogenous transplant has been put in place.

membrane of the joint surface is rapidly destroyed, probably by pressure necrosis, and with the destruction of this tissue, first a fibrous and later a bony ankylosis results. Concomitant with the destruction of the intra-articular tissue comes probably a stimulation and increase in antibodies to the periarticular structures which would seem to cause the death of the infective organism. I believe the gonococcus does not remain dormant in periarticular structures for any great length of time, and by this I mean any number of months. Consequently, surgical intervention in the form of arthroplasty may be resorted to much earlier than in those cases of ankylosis caused by such pathogenic bacteria as the staphylococcus and streptococcus, or chronic infections, as tuberculosis, which processes must not be disturbed until a much later period.

* Read before the Section on Surgery, General and Abdominal, at the Sixty-Eighth Annual Session of the American Medical Association, New York, June, 1917.

Surgeons of experience in joint surgery have come to realize how difficult to manage and how distressing are pathologic conditions of long standing in joints. The contractures in the capsule, ligaments and

Fig. 3.—A case of fracture badly treated, four months after injury.

tendons require long periods of time before they are restored to even an approximately normal condition. Therefore, surgeons should realize how imperative it is, first, to determine whether or not the ankylosis has been caused by the gonococcus, so that an arthroplasty may be done early before the distressing contractures take place, and, secondly, to introduce, in the management of the early cases of ankylosis caused by organisms other than the gonococcus, such treatment as will lead to a rapid and early encapsulation and death of the etiologic organism. I believe that careful observation along this line will enable us to perform arthroplasties much earlier than formerly, thereby saving much unnecessary suffering to the patient, shortening the period of invalidism very materially, and producing a more perfect anatomic and functional result.

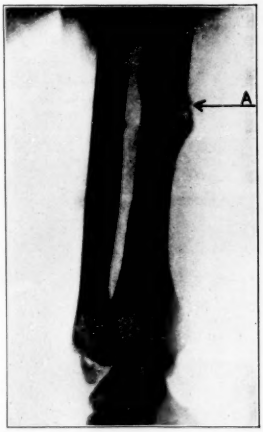


Fig. 4.—Same case with deformity corrected by means of an autogenous intramedullary splint shown at *A*.

The foregoing statements respecting the performance of early arthroplasties are not to be construed as

excusing any physician for responsibility in not instituting proper treatment in acute infections of joints if observed at the onset of the disease, since careful

Fig. 5.—Anteroposterior view of the same deformity corrected: *B*, point of regeneration.

management at this stage of arthritis would probably have prevented the ankylosis.

Fig. 6.—Intracapsular fracture of the neck of the femur reconstructed by means of a heavy autogenous bone splint.

DIAGNOSIS

The modern bacteriologic and Roentgen-ray laboratories are accessible to every physician. Certainly the question of a carefully interpreted history is within the range of every medical man. In summing up the diagnosis, we find that the history holds a very prominent place in the records of every case of joint disease. In this connection, I wish that every physician might read the paragraphs on incubation and diagnosis in a paper by Kreuscher.[1]

The subject of diagnosis of fractures may be dismissed with little comment, since practically every injury of any moment is subjected to Roentgen-ray examination. Two or more views at different angles should be taken; stereoscopic plates may be made in special fractures, or in certain pathologic conditions of bones or joints.

TREATMENT

Fractures.—1. Closed method. I have mentioned this method only to dispose of it by saying that the majority of simple fractures should be handled by this form of treatment. This is especially true when the surgeon has not had experience, or has not the equipment for carrying out surgical asepsis to the highest degree.

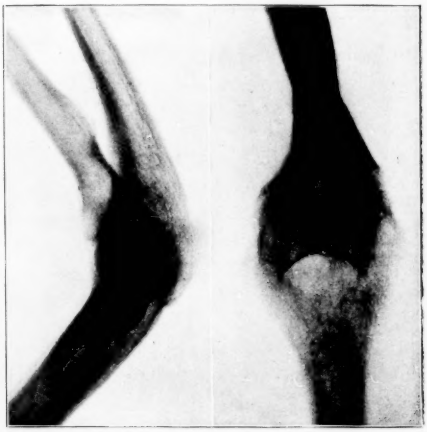


Fig. 7.—Complete bony ankylosis of the elbow joint.

2. Open method. I will not burden my readers with the details of the technic used in bone and joint surgery, as I have outlined the procedure thoroughly in previous papers. I wish only to state that the most careful asepsis is carried out, instruments and sponges being introduced directly from the sterilizer into the wound.

The indications for the open method are based on the treatment of ununited fractures (Figs. 3, 4 and 5), recent fractures with the intervention of muscle or fascia, certain spiral or oblique fractures whose fragments, owing to muscular strain, cannot be maintained in proper alinement, and intracapsular fractures of the neck of the femur (Fig. 6). I have operated in three of the latter. In all these fractures, I found the head turned and the torn capsule protruding down between the fragments. I am firmly convinced that this type of fracture should be treated by the use of an autogenous bone graft, which acts, first, as a splint in

1. Kreuscher, P. H.: A Clinical and Experimental Study of the Metastatic Arthritides, Med. Rec., New York, 1916, **40**, 834.

fixing the head to the neck, and, secondly, as a bridge for the laying down of osteoblastic cells between the neck and the head. My experience has taught me that bony union rarely ever takes place in a true intracapsular fracture unless an impaction is produced either artificially, after the plan of Cotton, or by the method just outlined.

Joints.—In the treatment of ankylosis of the elbow joint by arthroplasty, I have followed a modified plan of the pedicle flap operation outlined by Murphy (Figs. 7 and 8). The modification I have worked out consists in making a much longer internal pedicle flap than that described by him. The long flap extends through the joint, coming well out over the external condyle of the humerus, thereby permitting the external flap to be used in taking care of the head of the radius alone (Figs. 9 and 10). This procedure I believe is an important point in the technic of the elbow arthroplasty.

Treatment of Certain Bone Defects Caused by Disease or Congenital Absence of Bones.—I have recently

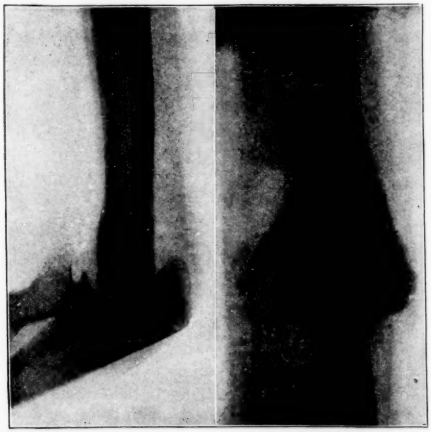


Fig. 8.—The condition shown in Figure 7 after operation by the flap method.

operated in a number of cases of tuberculosis of bones in which it was impossible to remove the diseased bone and splint the remaining soft tissues to prevent contracture (Figs. 1, 2, 9, 10 and 11). Consequently, I decided to transplant a graft immediately, knowing, of course, that this was against the generally accepted principles of bone grafting. I felt, however, that it would serve as a splint during the healing process of the soft tissues, and that there was some possibility that it might heal in. I am rather enthusiastic about the outcome of these cases, as I believe they go to show that autogenous bone grafts are more tolerant to chronic infection than we have generally supposed. I am especially enthusiastic about the transplantation of bone into those areas made absent by bone disease, instituting, immediately after operation, treatment with neutral solution of chlorinated soda, which I am certain hurries the healing process very materially. I do not wish to go on record, on the basis of the results obtained in these few cases alone, as an advocate of transplanting bone into infected areas generally. I wish, however, to state that I have performed this operation a number of times on the small bones of the fingers, in which conditions, if the graft were lost, it would be of small consequence, and it might act as a splint to prevent contracture of the fingers. Murphy frequently said that one single case explains a principle. That being true, the accompanying illustrations show that the autogenous bone graft has

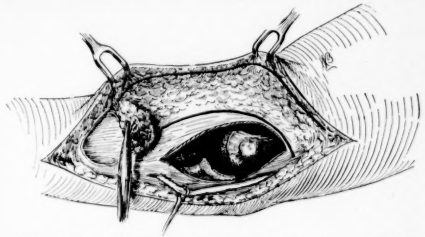


Fig. 9.—Long flap of fat and fascia loosened; ulnar nerve being retracted out of operative field.

healed in perfectly in a relatively short time. To me, these cases are very interesting, first, because the sinuses in the soft tissue have entirely closed, and secondly, because the graft not only has served as an osteoblastic bridge, but has united to what remained of the bony segments after the disease was removed, to form a permanent shaft of bone. One of these patients was operated on seven months ago, and the pictures show that the graft is still strong and healthy, and does not present any appearance of being absorbed, but has rather taken the place of the permanent shaft of the bone.

CONCLUSIONS

1. The surgeon should establish definite surgical indications before undertaking the treatment of fractures by the open method.

2. Better results are obtained from early arthroplasty in ankylosis caused by gonorrheal infection. The long pedicle flap is best suited for this procedure.

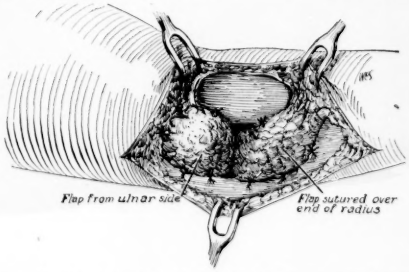


Fig. 10.—Flap from ulnar side brought through and sutured over end of humerus; short flap loosened and sutured over end of radius.

3. The autogenous bone graft, or in certain cases the heterogenous bone graft, is the choice of procedure when it can be used in fractures. The autogenous transplant is used to good advantage in bridging defects in the congenital absence of bone, or in bone destroyed by disease.

104 South Michigan Avenue.

ABSTRACT OF DISCUSSION

Dr. Philip H. Kreuscher, Chicago: Dr. McKenna has been able to implant in the infectious area of the hand a

Fig. 11.—Tuberculosis of the lower end of the tibia in which sinus formation was present for ten years.

transplant of a boy who had tuberculosis of the phalanx. If that can be done, then we will be able to transplant much

Fig. 12.—The same case shown in Figure 9, in which 6½ inches of the tibia have been completely removed.

earlier than we thought in the tuberculous cases. In over 900 cases in Dr. Murphy's clinic and mine we found streptococcic metastasis occurred in twenty-four to seventy-two hours; gonococcic metastasis in eighteen to twenty-two days; staphylococcic, in ten to fourteen days; staphylococcic and colon bacilli, in eight to ten days; colon bacilli and typhoid, in four to six weeks. I have seen infection in twenty-four hours following sinus operation. I have a young man under observation who was infected April 20, and May 10 showed acute gonococcic metastasis in the elbow and knee joints. There were streptococci present in 31 per cent. of the cases. I have under my care now a case of metastasis, occurring on the third day of smallpox, showing that we may have a metastasis from furuncles. The sinuses caused the arthritis in over 60 per cent. of cases in our arthritis series of over 900 cases.

Dr. R. H. Conway Gibbons, New York: Fifty years or more ago Professor Stille of the University of Pennsylvania taught that all of these troubles were due to blood poisoning. Joint troubles were pointed out as coming from various diseases—of the tonsils, teeth, etc. A young woman in New York, subject to tonsilitis, took employment with a laryngologist who had at the time six or eight severe cases of infection of the throat which she helped take care of. She became ill and was taken to the Presbyterian Hospital. She

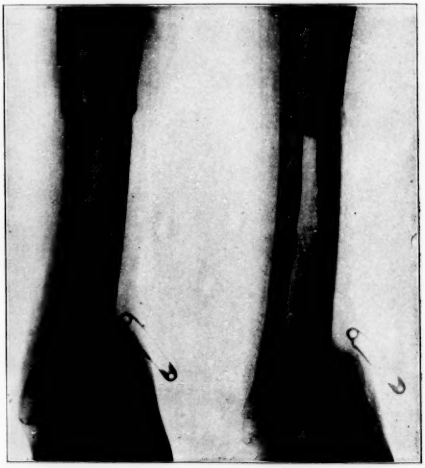


Fig. 13.—The same case as described in Figure 9, in which a heavy autogenous transplant from opposite tibia 9 inches in length completely healed in place.

came out with a stiffened joint. The late Dr. John B. Murphy saw her and advised her to have an operation. He said he could give her right-angle motion, which he did. But the operation was not a success, as there was uncontrollable lateral motion. Finally, she was examined by Dr. Henry Ling Taylor of this city. He put a brace on her leg, but she is not well and never will be free from various forms of lateral motion. When the crucial ligaments are gone, all is gone for usefulness of the knee joint. It is different with the elbow.

Dr. Hugh McKenna, Chicago: I have seen a number of knee arthrodeses performed by Dr. Murphy, and my conclusions are a little different from those of Dr. Gibbons. My patient would have been invalided for the remainder of her life. She had all her anatomic points remaining, and can do practically anything with this arm that she can do with the other.

A Foundation of Health.—Good health is the foundation of personal usefulness either in peace or war.—*Connecticut Health Bulletin.*

THE DIAGNOSIS AND TREATMENT OF SINUSITIS IN INFANTS*

ROSS HALL SKILLERN, M.D.
PHILADELPHIA

A DEFINITION OF SINUSITIS

The title of this paper is distinctly a misnomer. As a matter of fact, I do not believe that such a thing as sinusitis per se in infants exists. To bear out this

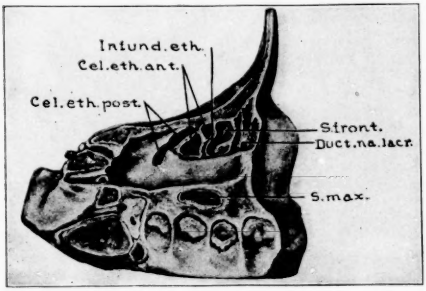


Fig. 1.—From a child 8 days old (after W. Davis).

assertion, we must revert to the actual anatomic conditions that are present in the first years of life. Let us arbitrarily classify infants and children according to the stage of development of the sinuses and not according to the actual age, although for the purpose of standardization we will take the age of 5 years as the dividing line between infancy and childhood, at least as far as the sinuses are concerned.[1]

DEVELOPMENT OF THE ACCESSORY SINUSES IN INFANTS

Let us follow the development of the accessory sinuses from the infant.[2] The ethmoid is the only one which is well developed, the cells are perfect and contain the usual number (Fig. 1). The maxillary is small and rudimentary, not being as large as the bulla cell (Fig. 2). We must always keep in mind that the true sinuses develop from ethmoid cells. The antrum develops first and enlarges rapidly (Figs. 3 and 4). Under the age of 2 years the sphenoid is but an indentation and the frontal has not yet made its appearance (Fig. 5). The transitional stage of the frontal and sphenoid sinuses is from 2 to 6 years. After the sixth year the true sinuses have become well developed and occupy their permanent positions in relation to the surrounding structures. In view of these facts, to speak of a sinusitis per se in infants is manifestly absurd, at least from the standpoint of the anatomist and pathologist. Various forms of ethmoiditis are not being considered in this category.

Exception might be taken to this statement on the basis that the true sinuses have their inception originally from the ethmoid cells, and should be regarded as cavities lined with mucous membrane which is, in fact, the periosteum of the bone.

This contention is proper when we speak of a true cavity surrounded by unyielding bony walls and this cavity alone being diseased (similar to a localized abscess). However, this is a far different picture from that observed in infants in whom a purulently diseased mass of cells, resembling a sponge, hangs free in a portion of the upper respiratory tract.

SINUSITIS IN INFANTS

Localized sinusitis in infants, or, to be more explicit, a localized inflammation of the mucosa of the maxillary sinus, has not come under my observation, nor have I been able to find the report of a case in medical literature. When infants (under 2 years) acquire a disease that affects these sinuses, it always attacks the tissues as a whole rather than confines itself to the maxillary sinus or ethmoid cells. These cases then show a general purulent affection of most of the lateral nasal wall incidentally embracing the ethmoid and antrum rather than taking them as a point of inception and remaining therein confined.

COURSE OF INFECTION

I think you will bear me out in this description when you recall the unusual severity with which these cases are always characterized. The infection acutely attacks not only the mucosa but the soft, spongy underlying bone so that almost the entire side of the nose and often the face is affected, always showing a marked predilection to point and rupture externally either above or below the orbit, depending on which portion of the underlying bone is more virulently involved. This picture usually occurs in the sinusitis of adults only when the drainage passages have become occluded. As the antrum in infants is so small that it would be almost impossible to occlude the ostium without obliterating the entire cavity, this sinus can hardly be the focus of infection.

THE ETHMOID

The ethmoid cells present a totally different proposition. Here we have numerous cells separated by

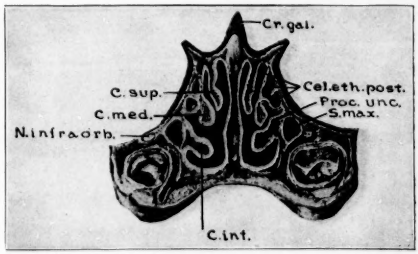


Fig. 2.—From a child 38 days old (after W. Davis).

their layers of soft, young bone which in itself is as susceptible to disease as its own lining membrane. Small wonder is it then, when the mucosa is once affected, that the bone becomes involved, and the disease spreads through the canaliculi and appears externally on the face. If we accept this view, sinusitis properly speaking in infants does not exist, but a general purulent infection embracing the ethmoid and maxillary sinuses together with the bone not infrequently occurs. This condition should be placed in the

* Read before the Section on Laryngology, Otology and Rhinology at the Sixty-Eighth Annual Session of the American Medical Association, New York, June, 1917.

1. Thomas Hubbard (Accessory Sinus Suppuration in Scarlatina, Am. Jour. Dis. Child., July, 1911, p. 11) recognizes this principle.
2. Davis: Nasal Accessory Sinuses, Philadelphia, 1914.

category of osseous infections and treated as such, rather than classed as a disease of the accessory nasal sinuses.

TREATMENT OF ETHMOID INFECTION

The treatment is as simple as it is radical. If seen sufficiently early, a thorough endonasal curetting of the ethmoid cells and antrum may prevent the formation of an external fistula and eventually bring about a cure. My experience in these cases has shown that, at least a discharge (if looked for) continues for many months after the acute symptoms have subsided.

SINUSITIS IN CHILDREN OVER 5 YEARS OF AGE

This condition appears to be a different form from the foregoing when not a sequel of scarlet fever or diphtheria.[3] In the first place, its inception is usually a common cold in the head, the discharge continuing until a sinusitis is present, resembling that form seen in the adult. Of course, it may be ushered in by an acute attack, but it does not show the tendency to involve the great amount of tissue nor to reach such an abrupt climax as seen in younger children. The older the child, the more marked becomes the tendency toward chronicity and limitation. It is common in the infant to have the disease result in producing a large area of external suppuration. Frequently the first indication of the disease, as far as the surgeon is concerned, is a slight swelling and redness to the median side of one eye, slightly anterior to the lacrimal bone and tear duct. This is accompanied by a purulent discharge from that side of the nose. Examination shows a well marked purulent inflammation of the ethmoid cells (frontal sinus), and unless it is promptly checked, will rupture externally. There is no question that the tear sac is often involved in the inflammatory process; indeed, it has been advanced that this often concomitant dacryocystitis may be the causative factor of the sinusitis.[4] After the rupture, the acute symptoms subside, and the discharge becomes chronic and the fistula permanent.

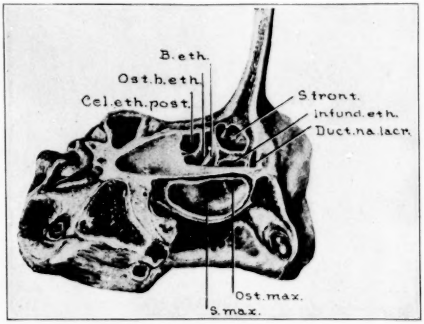


Fig. 3.—From a child 4 months and 27 days old (after W. Davis).

Sinusitis in children, however, does not always first manifest itself externally. It may simulate that of the adult by appearing as the continuation of a chronic cold and vague headaches, and intermittent though persistent occlusion of one side of the nose, with considerable purulent discharge from that side, together with the general symptoms of malaise, loss of appetite, anemia, etc. It is, however, the exception rather than the rule for the nasal specialist to see the child at this stage unless it has been referred by the general practitioner under whose care it probably has come. More often, the disease has advanced to that end stage before it reaches the specialist when complications, such as swollen eye lid with imminent rupture or even the more serious orbital or cerebral manifestations, threaten or are actually present.

DIAGNOSIS

The ease or difficulty of the diagnosis will depend largely on the time and pains one takes with the examination. As most of those cases occur among the poorer classes and as infants are usually not amiable subjects to handle, one is apt to give them but a cursory examination or turn them over to an assistant. Under these circumstances, many cases in the earlier stages will be entirely overlooked and only those conditions which have already manifested themselves externally will be properly diagnosed. In a comparatively recent case the predominant symptom will be the profuse nasal discharge. Subjective symptoms, such as pain and fever, will rarely be complained of. In the diagnosis, one condition which is rather common must be differentiated, that is, adenoids associated with postnasal suppuration or infected nasopharyngeal adenoid tissue. This differentiation, of course, can be accomplished by proper examination or, better still, one sweep of the curet.

Suppose, then, we had established a purulent secretion from one or both nostrils but were unable definitely to state its source, although one or more of the sinuses was suspected. What is our next course? Several ways and means are open to our use:

In the first place, by the nasopharyngoscope we can determine the approximate places of secretion. Before it is used, the necessity of thoroughly cleaning the nostril of secretion and shrinking the mucous membrane is of course obvious. It may also be necessary to have the aid of a strong nurse or an assistant to control the young infant or recalcitrant child, but it is well worth the trouble for the gained information.

The puncture needle as a diagnostic means in children does not especially appeal to me, although Hajek[5] reports good results in children as young as 5 years. When one considers the small size of the antrum even should pus appear on irrigation through the needle, it would be difficult to determine whether or not the pus really was secreted by the antral mucosa. Transillumination as a diagnostic factor is unreliable in adults; in children it is positively misleading and, in my experience, worthless, although one writer[6] appears to have found it useful.

The Roentgen ray is of positive assistance, which has been proved in a most exhaustive article by Haike[7] and recently by Coffin. The plates should give one a fair idea of the size, shape and condition of the various sinuses and, when compared with the normal side,

3. This form will not be included, as it has been exhaustively treated elsewhere (Killian: Die Erkrankungen der Nebenhöhlen der Nase bei Scharlach, Ztschr. f. Ohrenh., 1908, **56**, 189).

4. Van den Wildenberg: Complications des sinusitis frontales chez les enfants, Verhandl. d. III. Internat. Laryngol. Cong., 1911, p. 322.

5. Hajek: Nebenhöhlen der Nase, 1914, p. 11.

6. Oppenheimer: The Surgical Anatomy, Diagnosis and Treatment of the Inflammatory Affections of the Nasal Accessory Sinuses in Children, Med. Rec., New York, Feb. 21, 1914.

7. Haike: Die Roentgenuntersuchung der Nasennebenhöhlen der Kinder, Arch. f. Laryngol. u. Rhinol., 1910, **23**, 206.

show even more changes than are visible in the adult. In all suspicious cases unless the Roentgen ray has been used, not all reliable diagnostic means have been employed.

TREATMENT

Conservative.—In the beginning of an attack it can almost always be brought under control by general and conservative intranasal treatment, particularly when the symptoms point to frontal or anterior ethmoidal trouble (scarlet fever being excluded). This is also the experience of some of our foreign colleagues.[8] Calomel, one tenth grain, with sodium bicarbonate, 1 grain, should be given every hour until free purgation is produced. Calomel has a peculiarly beneficial effect with children and as a general eliminant cannot be surpassed. Locally a cleansing douche of physiologic sodium chlorid solution several times daily will suffice to keep the nose free.

Vaccines.—I have found these more useful in this class of sinus disease than in any other. My experience has been confined mostly to those commonly carried in stock, although on one or two occasions these preparations have failed and the subsequent use of the autogenous vaccine brought about a cure.

Surgical.—There is one thing marked in these cases; it is that the indications for surgical interference are very definite. A case is either one for conservative treatment or for operative procedure. That boundary line so perplexing in the adult is, at least as far as I know, not seen in children, and when operation is indicated, it should be performed at once. In no other class of patients does the disease progress so fast as in the young child, and often it is so advanced, when coming under our observation, that a most extensive and radical operation is required to save the child's life, not to speak of a cure of the affection. When we observe a child with a deformed face from a sinus abscess about to rupture, with exophthalmos, swelling of the lids, edema and a redness which together constitute a hideous deformity, one cannot help but feel, as Coffin[9] states, that there existed a previous stage during which proper treatment would have prevented the present serious condition.

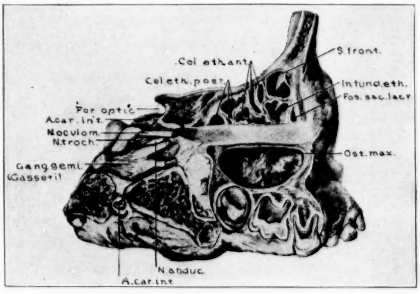


Fig. 4.—From a child 1 year and 4 months old (after W. Davis).

When a case comes to operation, a simple conservative procedure is usually of no avail. Chiari and Marschick,[10] by the removal of the anterior end of the middle turbinate and antiphlogistic measures, were able to bring only 25 per cent. of the cases to the healing stage. We should first try the intranasal exenteration of the diseased ethmoid cells and maxillary antrum with subsequent applications of an organic silver compound and administration of appropriate vaccines. Intranasal operations alone, however, are usually unavailing if much redness and swelling have appeared externally in the region of the eye. If it is necessary to make an external opening, even though a fistula had already formed, the incision should only be large enough for drainage. The bulk of the work should be intranasal. I have never seen a patient who did not recover under this form of treatment. Regarding the maxillary sinus, the Caldwell-Luc or any similar procedure through the canine fossa should never be resorted to on account of the destruction of the teeth germs which must necessarily follow.

If the antrum alone is affected, any thorough intranasal operation will give as good results as one can hope for from any of the more radical or external methods.

2032 Chestnut Street.

8. Glas: Verhandl. d. III. Internat. Cong., 1911, p. 332.
9. Coffin: Empyema of the Nasal Accessory Sinuses in Children under Fourteen Years of Age, Tr. Am. Laryngol. Assn., 1914, p. 111.
10. Chiari and Marschick: Zusammenhang der Erkrankungen der Orbita und der Nebenhöhlen der Nase, Med. Klin., 1908, No. 16.

ABSTRACT OF DISCUSSION

DR. ALBERT H. BEIFELD, Iowa City, Iowa: The question of the infection of the sinus in infants should always impress every physician as soon as he finds an acute rhinitis or coryza becoming chronic. I recently encountered five cases which looked like pellagra. In the fifth, when it seemed that the child was about to die, noting the purulent nasal discharge, I asked Dr. Dean's help and he found a definite enlargement of the cranial tissues, a bulging, and the treatment in this case was followed by improvement within a week. The same depression which had been the picture in the other cases, such things as the falling down, dizziness, the skin rash, general weakness, gradually but surely disappeared. Sneezing is a common symptom and I think often we do not realize the significance of it. I have seen ethmoiditis in a case of psychic vomiting, associated with thyroid disturbances in children, with enlargement of veins, and with diphtheria. When I see a child with a nasal discharge, I ask whether there has been sneezing or not. I frequently find that these cases are worth sending to the nose and throat department, and the treatment there instituted gives relief.

One point in regard to the differential diagnosis is that those things that are associated with symptoms which might lead you to suspect ethmoidal infections, namely, the question of rhinorrhea with sneezing, always occur in nasal asthmatic attacks to which children are subject. I therefore made an appeal for careful and thorough topical diagnosis of chronic or acute nasal discharge in infants and children. The same thing applies in children in at least a certain degree that applies to adults. We see many children whose lives and health are affected by focal infection of the tonsils, causing digestive disturbance and chronic poisoning of the nervous system. The subject of sinus infection is important, and who knows that it may not be one of the things that lead, perhaps, to ozena in the adults.

DR. L. A. COFFIN, New York: I showed at Atlantic City by lantern slides a double series of Roentgen-ray findings in children from 6 months to 15 years of age, one series showing clear, the other diseased sinuses. The 6 months child showed distinct and clear antrums. Dr. Skillern has almost taken ethmoids out of the sinus classification. To me, the ethmoid is a group of sinuses with which we shall still have to deal, and we shall deal with them as we deal with the other accessory sinuses, and their disease is in every way comparable to diseases of the larger sinuses. What we are especially interested in is that this class of disease be more generally recognized by the pediatrician.

There is a train of eye symptoms which we frequently see in children, comprising exophthalmos, chemosis, keratitis, etc., almost invariably due to a thrombophlebitis arising from empyema of one or more of the accessory sinuses. Such extreme conditions are frequently the result of the non-recognition of the seriousness of the so-called common cold in children. If the pediatrician or general practitioner does not know how to handle these cases, he should early seek the advice and help of the rhinologist.

Dr. Skillern did not mention suction as a form of treatment. Suction properly applied will give brilliant and satisfactory results. It can be used by the pediatrician as well as by the rhinologist, and not infrequently obviates all necessity for operative procedures that would otherwise be required.

Dr. Skillern says the Luc operation should not be performed. Personally, I feel that radical operations are safer than intranasal work. It is hard to do intranasal work in infants. It necessitates the use of ether, and the intranasal exenteration of ethmoids under general anesthesia is a dangerous operation even in adults.

DR. GREENFIELD SLUDER, St. Louis: It seems to me that Dr. Skillern is proving a difference with very little differentiation, but Dr. Coffin has emphasized that. That an inflammatory involvement of the lateral wall of the nose be differentiated from a sinusitis, it seems to me is pretty much of a nicety. I believe these cases are to be classed as a sinus inflammation quite as much as in the older patients with a pus cavity. They come under not so much a suppurative head, as Dr. Skillern emphasizes, but under a hyperplastic classification. Dr. Skillern spoke of all the sinuses but the sphenoid. The sphenoidal sinus—and in this statement I quote his authority, Warren Davis of Philadelphia—the sphenoid begins in the sixtieth day of fetal life. At the end of two years it has reached laterally to the foramen rotundum; at the end of six years it has reached the floor of the sinus and the Vidian canal. Sinus involvement in young persons seems to be difficult, and more so when in the posterior portion, according to age. I feel absolutely sure that sphenoid—and when I mention that I include postethmoid—involvement is of frequent occurrence in childhood. I have been in the habit of separating infancy at the second year from childhood beyond the second year. The diagnosis of postethmoidal sphenoiditis in children is exceedingly difficult. Postnasal examination is to be achieved rarely. In such cases suppuration is not profuse. There is pain and swelling and a more or less serous discharge, which continues. These cases I have seen repeatedly exploited, as Dr. Beifeld has said, as psychic vomiting. I have repeatedly seen them made the asthma of childhood, and have seen that asthma recover after postethmoidal interference.

DR. ROSS H. SKILLERN, Philadelphia: There is no question of the truth of Dr. Coffin's statement regarding the baby sinuses. I quoted directly from him in this respect. I do not know anything about the suction method of treatment in children. I have never tried it but should like to. I imagine it would be a rather difficult procedure, however. We all know that it is difficult enough to treat children anyway, and to give suction in these cases it seems to me would be a difficult thing.

Dr. Sluder says that in most cases the ethmoids are hyperplastic. That is true. He did not mention that these cases occur in infants under 2 years of age, but I suppose that is what he means. I do not recall seeing a case of hyperplastic ethmoids in a baby. Regarding the connection between the ethmoids and sinuses, that is true, but at the same time, I cannot help feeling that a mass such as the ethmoid, representing structurally a sponge covered with thin mucosa, is totally different from the smooth sinus with hard, bony walls, and it seems to me that it must be, and often is, affected in a totally dissimilar manner.

Signs of Death.—It is a sign of death when the forehead grows reddish and eyebrows sink, the left eye decreases, the tip of the nose becomes white, the chin falls, while the pulse runs, feet grow cold and the belly is relaxed.—Galen.

EXPERIMENTAL PYELITIS IN THE RABBIT *

H. F. HELMHOLZ, M.D.
AND
CAROL BEELER, B.S.
EVANSTON, ILL.

Numerous attempts have been made in the past to produce pyelitis by injecting bacteria into the bladder, with the idea of getting an ascending infection, and by injecting organisms into the circulation and expecting them to set up lesions in the kidney during the process of being filtered out. It has long been known, and it is becoming increasingly more evident, that bacteria during any infection, if they reach the blood stream, are likely to be excreted in the urine. This

Fig. 1.—Spontaneous pyelitis (distended ureters and pelvis).

applies to acute as well as chronic diseases. The kidney acts as a filter to remove bacteria from the circulation. If this is constantly taking place, we must naturally assume that the kidney has a great resistance to these organisms or that the bacteria are carried out so rapidly that they do not have an opportunity to multiply.

The two possibilities for infection are: (1) a loss of resistance of the kidney or an increase in the virulence of the organism; and (2) a stopping up of the natural washing-out of the urinary passages. The latter one of these factors has been studied by a great many observers, who have all showed that anything that obstructs the flow of urine makes possible an

* From the O. S. A. Sprague Memorial Institute Laboratory of the Children's Memorial Hospital.
* Read before the Section on Diseases of Children at the Sixty-Eighth Annual Session of the American Medical Association, New York, June, 1917.

infection of the kidney, whether the infecting organism is introduced from the bladder or by the blood stream. Furthermore, the work of Stewart[1] on ascending infection of the kidney by ureteral transplantation into the rectum has shown that the infection spreads upward by the lymph channels, and that the spread by the lumen of the ureter is less of a factor than formerly supposed. In this work, however, the lymph channels were cut and naturally offered excellent opportunity for the spread of infection. Hess[2] came to the conclusion that something more than the simple injection of colon bacilli into the bladder was necessary to produce ascending infection in the rabbit. The previous injection of turpentine or other irritant into the bladder was sufficient to bring about an involvement of the upper urinary tract. More recently Eisendrath and Schultz[3] have attempted to show that infection of the bladder with *Bacillus coli,* streptococci and *B. proteus* travels up the periureteral lymphatics. They used rabbits and dogs in their work. They described very extensive changes in nineteen of thirty-eight animals but recovered organisms from the kidney in only six of their positive cases in their first series and in none of their second. It seems that in view of the negative bacteriologic results, the causal relationship of the lesions and the organisms injected must be left open.

Fig. 2.—Hematogenous cortical abscesses.

It is not our object here to go into a discussion of the etiology of pyelitis, but merely to point out that with an unobstructed urinary tract there have been practically no constantly positive results in the production of pyelitis experimentally, either by intravenous or intracystic injection. In a previous series[4] of intravenous experiments we were able to produce kidney lesions in only eight out of sixty-six animals injected with colon bacilli, and in four out of eleven animals when injected with a mixture of colon bacilli and pneumococci, the tendency of the organisms to produce lesions in other organs being just as great as in the kidney. During the course of the experiments just cited, in controlling the urine of all animals before injection, we found a female rabbit with a constantly purulent urine. Cultures taken from a catheterized specimen of urine showed a pure culture of a gram-negative bacillus, that had the following characteristics:

The organism grew well on all mediums. There was a profuse yellowish growth on agar. Gelatin was not liquefied. Litmus milk was rendered acid and coagulated; but there was no digestion of the casein. Indol was produced. There was acid and gas formation in dextrose, lactose and saccharose. The organism thus belongs in the group of *Bacillus coli-communior.*

1. Stewart: A Study of Ascending Infection, etc., Univ. Pennsylvania Med. Bull., 1910, **23,** 233.
2. Hess: Mitt. a. d. Grenzgeb. d. Med. u. Chir., 1913, **26,** 135.
3. Eisendrath and Schultz: Jour. Med. Research, 1917, **35,** 295.
4. Helmholz, H. F., and Beeler, Carol: Focal Lesions Produced in the Rabbit by Colon Bacilli Isolated from Pyelocystitis Cases, Am. Jour. Dis. Child., July, 1917.

SUMMARY OF INJECTIONS

Series	No.	Kidney Lesions				Other Organs Involved
		Total	Pyelitis	Abs.	Bact.	
A. *Intravenous Injection*						
I	10	6	4	4	..	Hemorrhage into lung.
II	2	2	2	1	..	Abscess of seminal vesicle.
III	4	2	2	1	..	Hemorrhage of cecum and rectum.
IV	2	2	1	2	..	0
V	5	4	2	3	..	0
VI	2	2	1	2	..	Chronic nephritis.
VII	2	1	1	0	..	Generalized peritonitis.
VIII	2	1	1	1	..	0
IX	3	2	2	2	..	0
	32	22	16	16		
B. *Intracystic Injection*						
II	2	0	0	0	..	Infected Right Testis.
IV	2	2	2	0	..	0
V	5	3	1	0	2	0
VI	2	2	2	1	..	0
VII	2	2	2	0	..	0
VIII	2	2	2	0	..	0
	15	11	9	1	2	
C. *Rectal Injection*						
VII	2	0	0	0	..	0
VIII	2	0	0	0	..	Gram-negative bacillus.*
D. *Oral Administration*						
V	5	0	0	0	..	1x Bladder Gram-positive coccus; Gram-negative bacillus.
VI	4	0	0	0	..	2x Bladder Gram-negative bacillus.

* From bladder urine.

HISTORY

Feb. 17, 1917. The first urine examined showed about 150 pus cells to a low power field.

February 9. There was a large excess of pus cells.

February 10 to February 20. Daily examination revealed a large number of pus cells, single and in groups.

Fig. 3.—Ascending pyelitis (distended ureter).

February 20. A catheterized specimen of urine was cultured in litmus lactose agar, plain agar and broth.

February 21. There are innumerable colonies on both plates.

February 23. Specimens were expressed every other day showing albumin and casts in addition to pus cells.

March 3. Another catheterized specimen was cultured; pure culture same as obtained on February 20.

The animal was chloroformed, as it was getting very much weaker.

Necropsy.—On opening the peritoneal cavity the abdominal organs all appear practically normal. The bladder is distended with urine. The stomach, gastro-intestinal canal, spleen, liver, gallbladder, heart and lungs show nothing abnormal. On dissecting free the overlying organs the ureters on both sides are seen to be considerably dilated, as far down as the brim of the pelvis. Beyond this point they appear to be of normal diameter. No apparent pathologic constriction in the ureter at the brim of the pelvis was visible. The pelves of both kidneys were smooth, and of a reddish brown color; the capsule stripped readily. On section the cortex was of normal thickness, the striations regular. The outer portion of the medulla was deeply congested. The pelves in both kidneys were markedly distended, as seen in Figure 1. The left kidney pelvis was filled with thin purulent material, the right practically empty. The bladder urine showed only relatively few leukocytes, numerous casts and much débris. Cultures taken from the bladder and right kidney pelvis yield a pure culture of gram-negative bacillus.

Histology.—The bladder mucous membrane in the entire section is practically intact. In areas there are small clusters of lymphocytes; there are practically no polymorphonuclear leukocytes to be seen in the section. Kidney: There is considerable degeneration of the epithelium and dilation of collecting tubules; in areas focally there is considerable increase in connective tissue. In the medulla, especially toward the tip of the papilla, there is marked leukocytic infiltration about the tubules. Eosinophil cells are much in evidence. The mucosa of the pelvis is apparently thickened and shows considerable infiltration with leukocytes. The pelvis is filled with masses of polymorphonuclear leukocytes.

The colon bacillus isolated from the catheterized specimen of urine was used in nine series of experiments. The technic used in the experiments was as follows: The intravenous injections were made with a bacterial suspension that was made by centrifuging 15 c.c. of a twenty-four hour broth culture and suspending the bacilli in 5 c.c. of physiologic sodium chlorid solution. One c.c. of this suspension was injected into the ear vein. The intracystic injections were made after carefully catheterizing the animals and then allowing 5 c.c. of the bacterial suspension to run into the bladder.[5] In the feeding experiments 8 c.c. were injected. In the first series of ten animals which were injected intravenously, six showed lesions of the kidney; in four instances a pyelitis, and in four instances cortical or medullary abscesses. In two instances, as is evident from the table, both were present. In Series 3 and 9 also, all the injections were intravenous. In the other series the same culture was used in the injections given intravenously, intracystic and either rectally or orally, in order that the results could be more accurately compared.

In the thirty-two animals of nine series injected intravenously, twenty-two showed lesions of the kidney, in sixteen instances pyelitis and in sixteen instances cortical (Fig. 11) or medullary abscesses. In ten instances there were both abscesses and pyelitis. No doubt if the animals with abscesses had lived they would all have developed a pyelitis also. Of the thirty-two animals only three showed lesions outside of the urinary tract that could be ascribed to the colon bacillus: one instance each of abscess of the seminal vesicle, hemorrhage of the

Fig. 4.—Ascending pyelitis (cortical abscesses).

cecum, and generalized peritonitis. The peritonitis was due in large measure no doubt to extensive coccidiosis. The absence of lesions in other organs is just as striking as the localization of the organism in the kidney in twenty-two of the thirty-two cases.

The intracystic injections consist of six series, totaling fifteen animals. In four series of two animals each, pye-

5. Three control animals injected with a dilute solution of gentian violet showed that no fluid passed beyond the bladder.

litis was produced in 100 per cent. In the fifth only one had a definite pyelitis, but in two others gram-negative bacilli were isolated from the pelvis of the kidney. In the sixth series neither one of the two animals injected acquired a kidney infection. Figure 3 shows the swelling of the ureter, Figure 4 the one kidney with cortical lesions in the intracystic series.

Four animals that received rectal injection and nine that were repeatedly fed the colon culture showed no lesions of the urinary tract, except that in one instance in the rectal series and in three instances in the oral series, colon bacilli were isolated from the bladder but not from the kidney.

The serum of a rabbit immunized to the specific organism isolated from the urine agglutinated the organism in a dilution of 1:2,000. It did not agglutinate several strains of *B. coli-communior* isolated from human cases of pyelitis nor several strains of *B. coli* isolated from rabbit feces. A *B. coli-communior* isolated from the feces of the original pyelitis rabbit was agglutinated in the same dilution as the colon bacillus isolated from the urine.

COMMENT

The remarkable specificity of this organism is of interest from two very different points of view: first, it enables us to study better than ever before the etiology and probably the treatment of kidney infections, and secondly, from the purely biologic point of view, it shows us the extreme specificity the colon bacillus can acquire in localizing in the kidney, on intravenous injection.

These experiments prove without a doubt that pyelitis can be produced experimentally by intravenous injection as well as by injection into the bladder. What the route of the infection is from the bladder to the kidney we must leave an open question at this time. One point that we do wish to make, however, is that this work shows that if the organism has a specific affinity for the kidney its introduction into the bladder can be of very serious consequence to the individual. It will take further study to determine whether the bacilli reach the kidney via the lumen, the lymphatics or the blood stream. Experiments in that connection are at present under way.

If we compare these experiments with the results obtained by the injection of organisms isolated from human pyelitis cases, the specificity of this organism is even more striking. In sixty-six animals injected with different strains of *B. coli* only eight showed kidney lesions, and twenty-one lesions of the other organs; with this organism, of thirty-two animals injected twenty-two showed kidney lesions and in only three instances were the other organs affected.

The so-called epidemics of pyelitis that have been described from various European clinics might well be ascribed to an organism that, as this organism, has a specific affinity for the kidney tissue.

The specific localization of organism in tissues has been of great interest, especially since the work of Rosenow on the pneumostreptococcus group. Rosenow[6] in his work on the colon bacillus and streptococcus in gastro-intestinal infection, especially of the appendix, showed that the combination had specific tendencies to localize but that the colon bacillus alone had no such powers. Our work on the colon bacilli of human pyelitis cases led to practically the same result. With this organism the specificity manifests itself not only in that the kidney is involved in about 70 per cent. of the injections, but that in less than 10 per cent. of the injections is there involvement of any other organ. The intracystic infections are not of much importance in this connection because the distribution of the bacteria is not so widespread throughout the system as with the intravenous injections.

6. Rosenow: Jour. Infect. Dis., 1915, **16**, 240.

SUMMARY

1. Infections of the kidney were produced in 70 per cent. of all animals injected by the intravenous or intracystic route with a colon bacillus obtained from a rabbit with spontaneous pyelitis.

2. The organism, a *Bacillus coli-communior*, had a specific tendency to localize in the kidney tissues.

A CASE OF POISONING BY MUSTEROLE

DAVID I. MACHT, M.D.
BALTIMORE

The following case should be of interest not only to the pharmacologist and toxicologist but also to the general practitioner:

Mrs. S., aged 32, consulted me, May 31, 1917, on account of a rash. There was a scarlatiniform eruption over the neck, face, chest, arms and back. The rash resembled very much that of scarlet fever. Further examination, however, contradicted such a diagnosis. There was no history of exposure to scarlet fever; the patient's temperature was normal; the pulse rate was 76; there was no sore throat, "strawberry tongue" or any other sign of scarlet fever, and the general condition of the patient was good except that she complained of itching and burning. A very marked irritation of the conjunctivae was also noted. Physical examination of the chest and the abdomen was negative. There were no abnormal urinary findings.

On investigating the case more carefully, it was learned that the patient on the day before was complaining of pain behind the right ear and that some friends advised her to apply musterole to the painful spot. Accordingly the patient rubbed in thoroughly some of the nostrum in the right mastoid region, and on the following day the general exanthem appeared.

Musterole has been described[1] as being essentially a mixture of lard or some similar material, with oil of mustard, menthol and camphor.

Oil of mustard is known to the chemist and pharmacologist to be an exceedingly irritating drug attacking especially the eyes. When applied to the skin for any length of time it quickly draws blisters. Erysipelatous eruptions, general dermatitis, and even necrosis of the skin have also been described following its use. If absorbed into the circulation, oil of mustard may produce albuminuria and even nephritis.[2] Its use in therapeutics is for that reason very limited, and when it is employed, care should be exercised in handling it. Mustard plasters are for all purposes safer than the oil of mustard, and can be employed whenever the oil is indicated. A mixture of such an irritant oil as oleum sinapis and lard is very liable to be absorbed through the skin, and therefore the indiscriminate use of such oils in salves under fanciful names, without a physician's supervision, should be discouraged, as it may lead to untoward effects, such as in the case described above.

3218 Auchentoroly Terrace.

1. Musterole, THE JOURNAL A. M. A., Jan. 20, 1917, p. 214.
2. Compare Lewin: Nebenwirkungen der Arzneimittel, Berlin, 1899, p. 679.

Special Article

AT FORT RILEY

Fort Riley, on the Union Pacific Railway about 60 miles west of Topeka, is one of the largest of the historic forts of the West, and by many is considered the most beautiful.

THE TERRAIN

Situated on the Republican River at its junction with the Smoky Hill River to form the Kaw or Kansas, the post lies in a large, wonderfully drained basin with many small cañons leading down from the plateau, and innumerable side cañons opening into these. A noticeable feature is the rim rock which juts out from the hillside just below the level of the plateau surrounding the basin.

For a number of miles this plateau, at a level of perhaps 150 feet above the camp, extents to the north and to the west, forming an indefinite number of drill and maneuver grounds. Up the hill to the drill grounds is about the first hike of a new comer.

CANTONMENTS

The cantonments here are of the type approved by the War Department, and are substantially identical with those described and pictured in THE JOURNAL as they are found at Fort Benjamin Harrison and at Fort Oglethorpe. From 100 to 140 men are in each company, and each company has its own barracks with its mess hall immediately adjacent.

Up to the present date — August 10 — ten companies have been formed with a total enrolment of 912 men.

Special emphasis has been laid on these companies at Riley. Quite irrespective of his actual rank, one officer is appointed permanent captain of the company, others as lieutenants, others as sergeants and corporals, and the rest make up the roster of privates. This arrangement has been a wonderful help in giving the medical officer a thorough insight into the actual organization and working of a company, and in addition, it has stimulated a healthy rivalry between the companies in matters of drill, discipline and general efficiency. In nearly every company the "top" sergeant selected has been a man who has seen service, and has been able to drill men in such fashion that they take on the real military spirit in a surprisingly short time. To the casual observer, it is little short of wonderful to see how a group of medical men, who as a class are intensely individualistic and self-centered, sink all this below the threshold of their consciousness, and think, reason and act as units of a military organization.

THE WORK

There is perhaps no better way of getting an idea of what the men do than to schedule a typical day's work:

5:15		a. m.	First call for reveille.
5:30		a. m.	Reveille.
5:30	to 5:50	a. m.	Straightening up and getting things ship-shape; polishing shoes and puttees.
5:50		a. m.	Mess (breakfast).
6:10	to 7:00	a. m.	Study or perhaps repairing clothes.
7:00	to 7:20	a. m.	Physical exercise.
7:30	to 9:20	a. m.	Drill.
9:30	to 10:20	a. m.	Lecture: Army Regulations.
10:30	to 11:30	a. m.	Lecture: Manual of the Medical Department.
11:30		a. m.	First sergeant's call.
12:00		m.	Mess (dinner).
12:30	to 1:15	p. m.	Study or finishing up the various odd jobs.
1:15		p. m.	First call for afternoon instruction.
1:20		p. m.	Assembly.
1:20	to 2:20	p. m.	Lecture: Field Service Regulations.
2:30	to 3:30	p. m.	Lecture: Examination of recruits.
3:30	to 4:50	p. m.	Equitation or hike.

At 4:50 p. m., hot and tired, every one races for the cold shower and a change of clothes. This can just about be done in time for the day's closing ceremony — retreat.

Falling in at the assembly at 5:40 p. m., retreat is blown at 5:45, immediately followed by "To the Colors," the company standing at attention and the company commander at the salute. It is a hungry lot of men who go to mess immediately after retreat. Finishing supper at about 6:15, every one sits around and smokes or discusses the day's work till 7, and then studies from 7 until 9 and generally until 10. The call to quarters is blown at 9:45, which means hustle to bed; and taps at 10 finds every one in bed and the lights out. Every newly arrived man will solemnly declare that he has not been in his blankets over an hour when that bugler blows reveille, and he has to dash into his clothes just in time to hear the "top" call out in typical stentorian tones, "Fall in," and a new day's work begins.

Later on some of the lectures and quiz work are replaced by practical work such as tent pitching, map making, or a practice hike, staying on the field over night, sleeping in a pup tent and doing one's own cooking, etc. Toward the last of the course, the study lessens considerably, and men are assigned to field hospitals or ambulance companies for practical work with these units. Others may be given a platoon of enlisted medical corps men to drill, or are given sanitary inspection to make. If one misses lectures while doing these, he makes them up — somehow, somewhere.

RECREATION

There is a tradition at Fort Riley that the man who has time for recreation uses it by doing some extra work. Saturday afternoon there is no instruction, and one can do as one likes; but on one's first Saturday afternoon, one is likely to be detailed to fit shoes to a couple of hundred men; the next, one may be "on" at the camp infirmary, and so it goes. One hears rumors of pink teas, tennis, concerts and dances elsewhere, but not at Riley. The nearest town, Junction City — or "Junktown," as it is familiarly known — is 5 miles away, and about all an officer can want there is to get a hair cut or invest in some trifle.

MESS

The mess is the usual officers' mess — plain, generally well cooked, the food eaten on a long deal table, and seasoned by appetites bordering on the ravenous.

ESPRIT DE CORPS

The one thing which is the goal of the camp, which is striven for at all times and in all ways, is that indefinable thing known as *esprit de corps* — in sporting parlance, "playing the game." Each new company acquires it a little quicker than the last one, and prides itself on the fact. Every officer realizes that no instructor asks him to do that which he doesn't do himself.

If one is jerked up sharply for a bit of slow work at drill or in quiz, one remembers one's college football or baseball experience when the coach "bawled him out" or, if he is a teacher of medicine, he remembers his own way of doing, and so he plays the game, for he sees that the system works wonders. When one sees in how short a time a group of civilian physicians can be transformed into a body of trained medical officers, eager and able to maintain the high traditions of the Army, one realizes that this is the best possible commentary on the efficiency of the system, and on the enthusiasm of the instructors who have made the system a living reality.

While there is but little talk of the war and its possibilities, the undercurrent of deep feeling is evident on every hand, and this typical American spirit, "play the game and play it to the finish," is the reason of it all.

The following is a list of those in the photographs:

ARKANSAS

344 Huffman, K. B., Bentonville
106 Powell, B. V., Camden
93 Proctor, F. R., Fordyce
218 Posey, Ernest L., Van Buren

CALIFORNIA

274 Cline, Harry X., Burbank
73 Downs, J. M., Los Angeles
245 Luckie, Lorenzo F., Los Angeles
247 Sprague, Fred F., Los Banos
330 Newman, Richard J., Oakland
4 Reynolds, H. I., Palo Alto
18 Stolz, H. R., Palo Alto
200 Roberts, Wm. H., Pasadena
57 Smith, A. W., Pasadena
224 Irones, R. B., San Diego
46 Smith, F. J., San Diego
53 Alden, B. F., San Francisco
45 Dowdall, R. J., San Francisco
56 Ffoulkes, B., San Francisco
26 Flynn, T. J., San Francisco
75 Gibson, A. C., San Francisco
205 Glover, Cosmos A., San Francisco
289 Howe, Theodore G., San Francisco
14 Howell, E. H., San Francisco
35 Reddy, John J., San Francisco
80 Sampson, W. A., San Francisco
24 Stuckey, H. W., San Francisco
28 Weed, F. W., San Francisco
103 Berlew, J. M., Santa Ana
71 Winter, F. E., Santa Ana
279 Smythe, Hudson, Stockton
89 Lewis, W. J., Ventura

COLORADO

238 Allen, Floyd R., Colorado Springs
132 Bancroft, George, Colorado Springs
297 Filmer, Burnett A., Colorado Springs
48 Stough, C. F., Colorado Springs
321 Gjellum, A. B., Del Norte
237 Bane, Wm. M., Denver
124 Dorset, B. C., Denver
283 Finnoff, Wm. C., Denver
61 Garwood, A. G., Denver
62 Jones, W. W., Denver
6 Kent, W. C., Denver
236 Lunt, Lawrence K., Denver
104 Atkinson, C. F., Fort Collins
174 Rew, Albert W., Fort Collins
285 Leydam, James H., Frederick
165 Frank, W. W., Glenwood Springs
280 Edwards, Ernest G., La Junta
314 Turner, Floyd O., Stoneham

CONNECTICUT

273 Landry, A. B., Hartford

DISTRICT OF COLUMBIA

118 La Garde, Louis A., Washington
29 Snyder, Craig R., Washington

IDAHO

178 Howard, Wm. F., Pocatello
13 Sprague, F. M., Pocatello
74 Bland, C., Preston
316 Ingram, Jesse W., Priest River
214 Montgomery, Chas. F., Wallace

ILLINOIS

275 Wilson, Clyde S., Ablong
20 Kellar, D. H., Anvas
498 Monroe, C. W., Arthur
554 Stevens, H. I., Ashley
516 Harrod, R. W., Avon
161 Hendricks, W. W., Bardolph
507 Kunz, F. O., Beardstown
240 Field, Albert, Bement
458 Lewis, C. F., Brussels
574 Hughes, L. D., Carbondale
478 Edwards, F. M., Centralia
493 Adkins, R. E., Chicago
571 Allport, W. H., Chicago
326 Barnes, Carl, Chicago
466 Bernhardt, H. B., Chicago
496 Bettman, R. B., Chicago
202 Bower, Albert G., Chicago
430 Brodsky, L. L., Chicago
163 Brown, A. K., Chicago
418 Brucker, E. A., Chicago
495 Colebaugh, C. W., Chicago
438 Cornell, J. W., Chicago
36 Davis, George G., Chicago
44 Davies, H. R., Chicago
162 Edison, L. M., Chicago
9 Freeman, H. P., Chicago
78 Gatewood, L. F., Chicago
338 Green, Thomas S., Chicago
21 Harvey, B. C. H., Chicago
481 Howard, W. H., Chicago
474 Jared, V. M., Chicago
419 Jones, R. T., Chicago
47 Kerr, E. K., Chicago
259 Krasa, J. M., Chicago
492 Kuhn, L. C., Chicago
194 Leahy, Thomas M., Chicago
325 Lower, Frank S., Chicago
1 Lueders, A. H., Chicago
22 Lyons, J. B., Chicago
286 McGuire, John W., Chicago
526 Meacham, W. C., Chicago
429 Mellinger, H. W., Chicago
420 Merritt, F. W., Chicago
505 Miller, E. B., Chicago
77 Mock, H. E., Chicago
235 Rice, Wm. P., Chicago
442 Robinson, E. T., Chicago
41 Roblee, L. H., Chicago
573 Rosenbaum, L. W., Chicago
221 Sweeney, John S., Chicago
213 Thorpe, John N., Chicago
282 Thurlow, Ralph M., Chicago
544 Van Alyea, O. E., Chicago
11 Von Zelinski, W. F., Chicago
58 Webster, R. W., Chicago
81 Werlich, R. C., Chicago
59 Williamson, C. S., Chicago
102 Wyatt, B. I., Chicago
484 Armbruster, A. C., Collinsville
3 Wilhelmy, A. H., Decatur
567 Hartnack, K., Downers Grove
72 Puffer, M. L., Downers Grove
152 Applewhite, Lee D., E. St. Louis
563 Boyne, W. W., E. St. Louis
189 Harney, Louis G., E. St. Louis
339 Williams, S. W., Eldorado
459 Bowman, N. W., Flora
145 Walton, James C., Forest City
556 Moffett, R. A., Gladd
111 Hall, W. L., Greenville
545 Bond, R. G., Harrisburg
559 Cummins, E. W., Harrisburg
550 Fuson, C. M., Harrisburg
230 Van Kirk, John A., Hatseka
268 Baker, L. W., Herrin
182 Murrah, Frank C., Herrin
266 Jacks, R. R., Highwood
532 Brink, H. W., Hopedale
271 Pearce, F. B., Jacksonville
199 Woltman, H. C., Jacksonville
258 Lumley, Zoda D., Kampsville
453 Chapman, W. E., Leland
107 Gaffney, C. C., Lincoln
250 Fowler, Loren L., Marion
64 Barker, F., McWaukegon
566 Floreth, G. A., Mount Olive
169 Ellis, E. K., Murphysboro
417 Barclay, C. K., New Lenox
261 Morgan, D. A., Nilwood
543 Alderson, A. L., Pana
181 Knox, Thos. B., Quincy
535 Jackson, A. D., River Forest
477 Earngey, Willard, Rockford
415 Clarke, G. W., Roseville
551 Egan, D. E., St. Charles
456 Hazel, J. B., Staunton
246 Van Meter, E. P., Staunton
482 Horn, A. S., Tampico
557 Allyn, P. R., Waverly
541 Allyn, W. H., Waverly
284 Jacobson, Guy H., Wayne City
549 Blatchford, F. W., Winnetka
450 Adams, J. W., Witt

INDIANA

87 Sechrest, W. C., Bicknell
39 Brown, K. T., Indianapolis
540 Newell, G. W., Peru
70 Betsy, F. A., Union City
569 Jones, J. G., Vincennes
447 Quillin, L. J., Warsaw

IOWA

375 Mattison, G. O., Acron
304 Irwin, Harry, Adel
343 Lang, Corvis C., Altoona
514 Guernsey, P. F., Bloomfield
576 Alt, R. C., Cedar Rapids
542 Skinner, George, Cedar Rapids
108 Howard, W. A., Cherokee
501 Greenwood, T. M., Circleville
267 Bartlett, C. L., Clinton
529 Bridgman, H. L., Columbia
225 Golden, Thos. V., Creston
346 Macrae, J. G., Creston
546 Lamb, F. H., Davenport
378 Schroeder, P. H., Davenport
345 Earwood, E. R., Des Moines
264 Elder, J. W., Des Moines
384 Hunt, J. C., Des Moines
439 Osborn, J. W., Des Moines
521 Price, A. S., Des Moines
361 Stewart, A. B., Des Moines
475 Binford, W. S., Dixon
114 Parker, H. C., Dubuque
445 Ruyewvitz, J. L., Duncombe
223 Hoffman, Wm. L., Gilbert
142 McAllister, F. J., Hawarden
60 Parker, E. S., Ida Grove
500 Van Epps, C., Iowa City
454 Brown, W. F., Keokuk
116 Gilbillen, Bruce L., Keokuk
34 Hill, F. R., Logan
357 Swift, F. J., Maquoketa
315 King, Oran W., Montezuma
137 Fulliam, Ed. B., Muscatine
148 McClean, Earll D., Oskaloosa
443 Anthony, W. E., Ottumwa
421 Clary, W. H., Prescott
457 George, A. B., Red Oak
388 Christensen, J., Sioux City
367 Freer, C. E., Sioux City
515 Caldwell, J. W., Steamboat Rock
399 Kas, T. D., Sutherland
525 Morganthaler, O. P., Tempelton
485 Pace, A. A., Toledo
402 Parsons, C. D., Vincent

KANSAS

229 Mielke, Charles H., Alma
110 Young, R. C., Arkansas City
196 Hickey, Frederick R., Chanute
233 Norman, Wm. G., Cherryvale
295 Lewis, Arthur J., Council Grove
32 Reno, W. W., Fort Riley
2 Ellis, F. G., Frederick
548 Hood, T. A., Garnett
364 Alford, J. S., Independence
272 Boyce, S. F., Iuka
318 Palmer, Wm. R., Kansas City
506 Burkett, W. C., Kingman
570 Donnell, J. B., Kinsby
369 Barnes, R. E., Lawrence
363 Siever, C. M., Manhattan
463 Engberg, A., McPherson
140 McCool, Stanton A., Neosho
313 Cole, Charles W., Norton
504 Hawthorn, H. B., Palmer
509 Appleby, C. E., Peabody
197 Lasche, P. G., Richland Center
239 Brown, L. T., Spearville
470 Adams, C. S., St. John
366 Lindsay, M. J., Topeka
333 Phares, Willard A., Wichita
365 Hawk, C. C., Winfield
362 Jones, H. H., Winfield

KENTUCKY

139 Price, Carroll P., Harrodsburg
398 Coolidge, W. L., Louisville

LOUISIANA

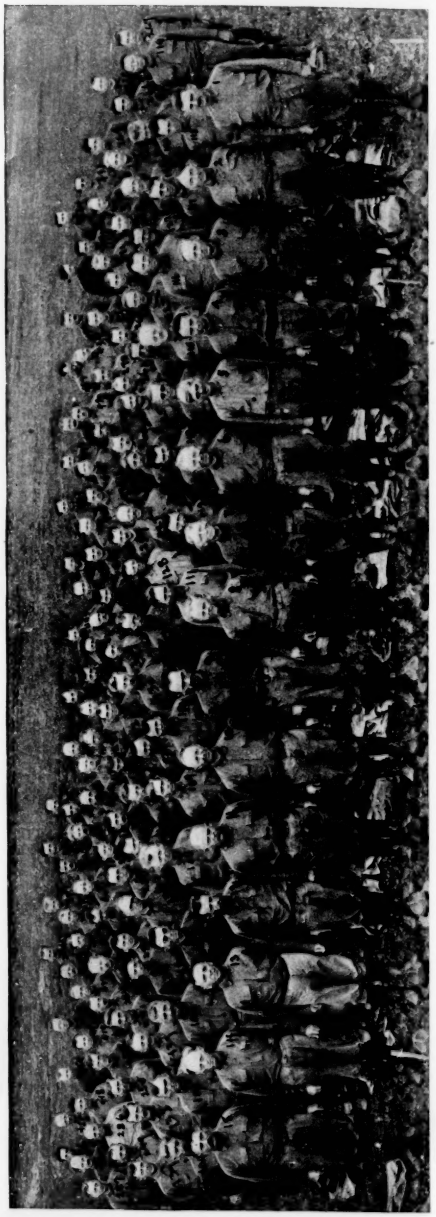
207 Tucker, James A., Baton Rouge
242 Furman, Frances S., Shreveport

MAINE

568 Fox, J. S., Fort Preble

MARYLAND

27 Pillsbury, H. C., Takoma Park



MICHIGAN

202 Salisbury, Walter N., Ann Arbor
5 Walsh, J. L., Iron River

MINNESOTA

76 Snyder, G. W., Belle Plaine
441 Laney, R. L., Brown Valley
146 Guittard, Virgil, Cloquet
360 Raiter, F. W. S., Cloquet
499 McHugh, R. F., Coleraine
510 Robertson, J. B., Cottonwood
303 I[illegible], Bert V., Delano
359 Andreas, J. H., Duluth
340 Clark, Chester H., Duluth
128 King, Emil, Fulda
270 Elsey, J. R., Glenwood
254 Ransom, Matthews L., Hancock
241 Bursheim, Peter J., Lake Benton
385 Liedloff, A., Mankato
249 Pratt, Chelsea C., Mankato
243 Heagerty, Wm. B., Mazeppa
255 Bacon, Harry P., Milaca
290 Brown, Paul, Minneapolis
120 Butler, John, Minneapolis
381 Cruzen, R. E., Minneapolis
281 Forsythe, Samuel T., Minneapolis
306 Graves, Floyd E., Minneapolis
63 Hengstler, H., Minneapolis
192 La Vake, R. T., Minneapolis
180 McCusker, Chas. F., Minneapolis
383 Noice, R. R., Minneapolis
358 Rosenwald, J. P., Minneapolis
94 Sessions, J. C., Minneapolis
184 Shewbrooks, D. M., Minneapolis
135 Thomas, Gilbert J., Minneapolis
10 Bickford, H. G., Minn. Lake
68 McKeon, J. O., Montgomery
222 Schmidt, Geo. F., Pipestone
83 Wilkinson, J. C., Red Lake Falls
251 Bjerken, Fred N., Red Wing
52 Bell, L. F., Rochester
149 Berkman, David, Rochester
82 Brodie, W. D., St. Paul
115 Cook, P. B., St. Paul
522 Meyerding, E. A., St. Paul
335 Middleton, Wm. L., St. Paul
90 Staley, J. C., St. Paul
248 White, Jonas S., St. Paul
121 Daniels, J. W., St. Peter
50 Workman, W. G., Tracy
301 Kenyon, Paul E., Wadena
320 Bates, Bert V., Wheaton
520 Canfield, H. E., Willmar
396 Schaefer, S., Winona
127 Manson, Frank, Worthington

MISSISSIPPI

109 Stephenson, R. M., Lexington
437 Butler, H. C., Moselle

MISSOURI

473 Albright, F. C., Bronough
193 Jenkins, Chas. E., Brookfield
332 Crank, Alexander C., Canton
208 Berry, John W., Cape Girardeau
531 Williams, P. R., Cape Girardeau
324 Noyes, Guy L., Columbia
323 Ravenel, Mayzek P., Columbia
227 Griffith, Edgar M., Creighton
98 Johnson, J. W., Hayti
123 Blankenship, E. P., Houston
131 Abramopoulos, C., Kansas City
300 Beebe, Joseph A., Kansas City
386 Broyles, G. H., Kansas City
511 Culbertson, W. F., Kansas City
400 Gist, Wm. L., Kansas City
211 Harrington, Walter W., Kansas City
12 Hecker, F. H., Kansas City
190 Hill, Wm. H., Kansas City
296 Hiller, Frank B., Kansas City
228 Hopkins, Chas. B., Kansas City
410 Howell, J. F., Kansas City
405 Hurwith, F. R., Kansas City
126 La Rue, H. M., Kansas City
350 Leonard, W. H., Kansas City
407 Lyle, H., Kansas City
327 Lynch, John C., Kansas City
448 McCarthy, H. E., Kansas City
167 Meade, R. H., Kansas City
305 Miller, George C., Kansas City
49 Milne, L. S., Kansas City
220 Powers, James W., Kansas City
331 Rogers, Fordyce B., Kansas City
207 Small, Walter L., Kansas City
37 Smith, D. O., Kansas City
472 Smith, J. H., Kansas City
287 Trachinos, Frank R., Kansas City
337 Valentine, H. S., Kansas City
406 Wilhelm, D., Kansas City
257 Bogard, Edward, Lilbourn
395 Lewellen, C. P., Louisiana
141 Torey, Les E., Piedmont
293 Coffey, Grundy C., Platte City
201 Yengle, Roland P., Pleasant Hill
203 Insley, Herbert W., Rich Hill
198 Powers, Chas. E., Rockville
210 McCall, Otis S., Rocky Comfort
212 Heibner, Eugene A., Sedalia
560 McGinnis, C. S., Sedalia
166 Beckemeyer, W. A., Sedalia
256 Box, Ernest M., Springfield
138 Kizer, Philip, Springfield
329 Wills, Wm. J., Springfield
299 Gossow, August A., St. Charles
113 Brewer, W. H., St. James
19 Cook, E. F., St. Joseph
519 Corbin, S. W., St. Joseph
408 Schmidt, O. A., St. Joseph
153 Smith, A. S. J., St. Joseph
143 Alexander, Robt. B., St. Louis
523 Axline, J. T., St. Louis
157 Bremser, H. L., St. Louis
464 Fry, W. F., St. Louis
480 Gibbs, F. L., St. Louis
319 Gordon, Frank N., St. Louis
92 Hawley, N. J., St. Louis
483 Heiple, E. E., St. Louis
176 Herrick, Harold C., St. Louis
244 Heuman, Geo. W., St. Louis
276 Hobson, Dana A., St. Louis
130 Hynes, J. C., St. Louis
468 Kouri, M. F., St. Louis
349 Ude, Waldemar, St. Louis
382 Unger, O. L., St. Louis
204 Woodruff, Fred E., St. Louis
455 Shudde, O. N., Sullivan
411 Belshe, G. W., Trenton
351 Awry, S. D., Troy
277 Lutman, Harry N., Versailles
291 Harrison, Alfred M., Warrensburg

MONTANA

136 Loring, Fred W., Butte
23 Wilking, S. V., Butte
97 Hathaway, R. E., Glendive
173 Irwin, J. H., Great Falls
51 Bartlett, J. D., Lewiston
491 Androps, S., Richey

NEBRASKA

85 Howard, W. S., Alliance
553 Cline, E., Auburn
513 Metheny, E., Cairo
426 Legg, C. E., Champion
168 Koefoot, T. H., Columbus
112 Newparker, U. R. C., Columbus
164 Johnson, C. C., Creighton
380 Reed, C. O., Ewing
69 Redfield, W. J., Grand Island
476 McCabe, F. H., Holbrook
8 Garlinghouse, O. L., Iola
374 Hibbard, P. L., Kearney
117 Andrews, Henry S., Minden
175 Clements, Stanley C., Neligh
116 Hooper, Clifford, North Platte
342 Nade, John C., Oconto
322 Wallingsford, C. C., Ogallala
503 Akers, W. O., Omaha
172 Akin, H. L., Omaha
534 Egen, L., Omaha
158 Eggers, H. E., Omaha
160 Fricke, A. A., Omaha
7 Gilbert, G. R., Omaha
129 Johnson, A. A., Omaha
84 Van Buren, F. A., Omaha
353 Buis, John, Pender
416 Crawford, W. H., Rushville
394 Ershine, E. B., Wayne
427 Brenn, C. P., Western
195 Wells, Harry L., West Point

NEVADA

188 Turner, Delos A., Goldfield

NEW JERSEY

265 Brady, C. S., Union Hill

NEW MEXICO

423 Tinder, J. W., Roswell

NEW YORK

428 Dwyer, J. G., New York City
33 Richardson, W. H., New York City

NORTH CAROLINA

555 Allen, B. C., Henderson

NORTH DAKOTA

95 Hillis, S. J., Berthold
209 Brini, Carl L., Cooperstown
302 Pryse, Roscoe C., Dawson
217 Nachtweg, A. P., Dickinson
479 Meland, O. N., Grand Forks
444 Nickerson, B. S., Mandan
147 Livingston, Jos. W., Valley City
185 Strong, Thos. J., Williston
67 Reedy, P. G., Wilton

OHIO

154 Williams, Curtis C., Niles
144 Syman, L. L., Springfield

OKLAHOMA

391 Bradfield, S. J., Bartlesville
462 McDonald, C. R., Broken Bow
561 Clark, E. W., Granite
171 Janney, J. G., Lawton
312 Davenport, A. E., Oklahoma City
187 Long, Robt. D., Oklahoma City
389 Mraz, J. J., Oklahoma City
390 Reed, H. L., Oklahoma City
25 Bolend, F. J., Okla. National Guard
371 Capps, J. F., Tulsa

OREGON

156 Guillion, W. F., Eugene
16 Abraham, V. R., Hood River
119 Everett, E. A., Lake View
125 Buck, George, Portland
42 Dammasch, F. H., Portland
317 Grant, Daniel, Portland
234 Kane, Edward P., Portland
252 Palmer, Dowin L., Portland
311 Pargon, Joseph A., Portland
170 Rockey, Paul, Portland
348 Weatherbee, J. R., Portland
347 Houck, G. E., Roseburg
356 Vincil, F. H., Roseburg
86 Smith, W. C., Salem

SOUTH DAKOTA

278 Field, Louis M., Aberdeen
461 Kaps, F. O., Britton
179 Edward, Geo., Bruce
226 Ashcroft, F. E., Deadwood
216 Duerr, John E., Groton
232 Fiksdal, Mads J., Webster

TENNESSEE

54 Steele, J. B., Chattanooga
122 Bundrandt, Wm. C., Lawrenceburg

TEXAS

91 Doole, T. P., Eagle Lake
43 Sauer, P. K., El Paso
31 Bispham, W. N., Galveston
440 Morgan, E. H., Granbury
524 Clark, F. E., Jayton
336 Whisenant, J. R., San Antonio

UTAH

253 Whalen, Walter E., Ogden
412 Jansen, F. J., Salt Lake City
373 Jellison, R. T., Salt Lake City
372 Van Scoyoc, J. C., Salt Lake City

WASHINGTON

308 Brooks, Samuel G., Anacorta
219 Powell, I. W., Bellingham
294 Knox, John F., Elmira
334 Campbell, Daniel R., Pullman
377 Beeler, G. W., Seattle
341 Pontius, Nevin, Seattle
288 Simpson, Austin V., Seattle
65 Smith, E. H., Seattle
376 Durrant, J. A., Snohomish
354 Byrne, J. G., Spokane
191 Lambert, G. E., Spokane
328 Nather, Fred B., Spokane
38 Newell, R. J., Spokane
888 Pennock, W. J., Spokane
66 Robinson, H. H., Spokane
17 Sprowl, F. S., Spokane
55 Whittaker, F. J., Spokane
206 Allen, Robert A., Tacoma
397 Gammon, C. P., Tacoma
215 Laws, Clement E., Tacoma
151 Stryker, Ralph F., Wedgefield

WISCONSIN

471 Palmer, J. A., Arcadia
309 Coleman, Harry N., Barrow
489 Driessel, S. J., Barton
310 Lewis, Paul J., Bloomington
494 Farrage, J., Breckinridge
552 Axley, A. A., Butternut
572 Beeson, H. B., Cornell
502 Hager, F. J., Denmark
486 Bennett, L. J., Fort Atkinson
40 Clark, W. T., Fort Atkinson
231 Fritchen, Arthur F., Franksville
562 Rodecker, R. C., Holcombe
469 Brunckhorst, F. O., Hortonville
508 Burns, H. J., Hudson
488 Clarke, C. C., Janesville
150 Van Kirk, Jas. W., Janesville
414 Hanley, W., Kenosha
436 Nelson, N. O., Madison
467 Grannis, I. V., Menominie
449 Bading, G. A., Milwaukee
387 Blumenthal, R., Milwaukee
446 Bornstein, M., Milwaukee
433 Jenner, A. G., Milwaukee
413 Mackedon, T. E., Milwaukee
370 Sargent, H. L., Milwaukee
392 Shubert, F. J., Milwaukee
15 Parmenter, E., Mondovi
497 Menefee, B. F., Montgomery City
460 Johnson, J. C., Ogdensburg
177 Provost, A. G., Oshkosh
512 Crane, M. C., Osseo
533 Barnes, H. T., Pewaukee
487 Fowler, P. H., Plain
159 Borden, F. R., Plainfield
96 Pretts, W. I., Plattville
79 Richards, C. W., Reedeburg
355 Schiek, J., Rhinelander
379 Boyden, W. L., Seymour
518 Bedford, E. W., Sheboygan
432 Dehmel, R. W. A., South Germantown
517 Christensen, J. W., Sparta
368 Erickson, H., Stanley
431 Keenan, H. A., Stoughton
527 Huff, F. C., Sturgeon Bay
452 McEacheon, W. A., Superior
528 Boland, J. E., Two Rivers
465 Converse, G. L., Webster
490 Tyvand, J. C., Whitehall

WYOMING

30 Coffin, J. M., Fort Yellowstone

The Venereal Diseases

THE DIAGNOSIS AND TREATMENT OF SYPHILIS

NOTE.—*This is the first of a series of four articles on the management of venereal diseases with special reference to military practice. The articles have been prepared under the direction of the Surgeon-General by the Advisory Committee on Venereal Diseases, Dr. William Allen Pusey, Chicago, chairman; Dr. Francis R. Hagner, Washington, D. C.; Dr. Grover W. Wende, Buffalo; Dr. Sigmund Pollitzer, New York, and Dr. Henry H. Morton, Brooklyn, with Lieut.-Col. F. F Russell in charge of Infectious Diseases. The series is published with the permission of the Surgeon-General, and will include the following: Treatment of Syphilis; Chancroid; Balanitis Gangrenosa; Acute and Chronic Gonorrhea, with its complications. The complete series will be issued in the form of a manual.*—ED.

The care of syphilis in the new army will have to do chiefly with early syphilis, and in this article early syphilis is the condition under consideration, unless otherwise stated.

CASE RECORDS

Great importance is attached to the keeping of systematic and full histories of venereal cases. Such records will in time accumulate a very large and valuable fund of information on these diseases.

In respect to syphilis, the army now requires the keeping of a syphilitic register. This register will insure a much desired uniformity in the keeping of the records of syphilitic cases, and attention is called to it in order to emphasize its importance.

IMPORTANCE OF EARLY DIAGNOSIS

The matter of prime importance in handling syphilis is to get it at the beginning of the infection. The earlier it is treated the better are the prospects of cure, and the quicker the soldier can be made noncontagious and gotten back to duty. It should be the constant effort to discover syphilis at the earliest possible time, if possible before the development of a positive Wassermann reaction.

To this end, every sore, whether on the genitals or elsewhere, that is open to any suspicion of being a chancre, should be repeatedly examined for spirochetes. No determining weight should be given to the so-called specific clinical characteristics of any lesion that might by any possibility be a chancre. Experience has shown that the typical clinical characteristics of the chancre, aside from indolence — and this may be masked by another infection — are often lacking. Any excoriations, papule, nodule, crack, herpetic or other erosion, no matter how small, may be an initial lesion of syphilis; and such lesions, as well as ulcers about the genitals — and elsewhere, if there is any reason to suspect them or if they are indolent and not readily to be accounted for — should be searched for spirochetes.

Chancroids in particular should never be accepted as uncomplicated by syphilitic infection. They are likely to have a double infection, and should always be zealously examined for *Spirochaetae pallidae*. Sometimes, in spite of the most careful search, the spirochetes escape detection in chancroids. For that reason, one can never be sure that a chancroid does not hide a chancre; patients with chancroid, therefore, require watching for the possibility of syphilis, and, when the spirochetes cannot be found, should always have weekly Wassermann tests for three or four weeks until the question of syphilis can be decided.

Antiseptics, especially mercurials, render the finding of *Spirochaetae pallidae* difficult or impossible; and, because of this, it should be routine practice to apply no mercurial dressings, or better, no antiseptic dressings, to suspicious lesions until the necessary examinations to exclude *Spirochaetae pallidae* have been made. If any such application has been made to a suspected lesion, the lesion should be thoroughly irrigated with physiologic sodium chlorid solution, and a wet dressing of this solution applied for twelve hours or more before examining for spirochetes.

In order to aid in discovering the initial lesion at the earliest moment, soldiers who have been exposed should be inspected at intervals of a few days for at least three weeks, and also instructed to be themselves on the watch for suspicious lesions.

EXAMINATION FOR SPIROCHAETA PALLIDA, AND DIAGNOSIS

To obtain the *Spirochaetae pallidae* for examination, two procedures are of value. In obtaining them directly from the lesion, the surface should be wiped with gauze wet with physiologic sodium chlorid solution, to remove saprophytic organisms, especially the *Spirochaeta refringens*. The rubbing should leave a clean oozing surface, not bleeding. Light curettement may be necessary in some cases. Moderate squeezing of the lesion will then cause an exudation of lymph from the deeper portions of the tissues. A drop of this lymph is then touched to a cover-glass and placed on a slide, or the fluid may be collected in a capillary pipet. It may be preserved for a few hours by sealing the pipet, or the specimen on the slide may be ringed with paraffin or petrolatum and kept on ice for variable periods up to twelve hours or longer. Delay impairs the validity of the findings, however, and multiplies uncertainties, so that examination should be made at once.

A valuable method, which relieves the observer of much of the responsibility for differential diagnosis of the organism, is glandular aspiration. This can be done on prominent nodes in the satellite adenopathy accompanying the primary lesion. It can also be performed on the indurated base of a suspected chancre. A sterile glass syringe, of 1 c.c. capacity, fitted with an ordinary stout hypodermic syringe needle, an inch or so in length, is sufficient. The skin over the gland is painted with iodin, and the gland palpated and fixed between the thumb and forefinger of the left hand. The needle is plunged through the skin into the gland, the penetration of the capsule being indicated by the moving of the gland under the finger when the position of the syringe is changed. The gland is then held firmly while the needle is manipulated enough to macerate the tissue immediately around the point. Aspiration will draw a drop or two of tissue juice into the needle and barrel. The fluid thus obtained is often rich in *Spirochaetae pallidae*. The method is not especially painful, and is easily borne by the average patient.

The *Spirochaeta pallida*, as obtained for study by these methods, has a morphology usually easily recognized by the experienced observer. It is a regular spiral organism, of from 6 to 15 microns in length, with from 3 to 26 turns. The average length is about twice that of a red blood cell, and the usual number of turns is from 10 to 20. It is rather slow moving,

which is a distinctive characteristic. A movement in the direction of the long axis and a rotating movement are most commonly observed. The organism retains its clear-cut, regular spiral turns exceptionally well, even at rest — another distinctive characteristic. Long forms bent in the middle are occasionally seen.

From *Spirochaeta refringens,* if this is not eliminated by proper cleansing, the *Spirochaeta pallida* is distinguished by the fact that *Spirochaeta refringens* is obviously coarser, and the turns are fewer and less regular. *Spirochaeta refringens* does not keep its corkscrew shape so well as *Spirochaeta pallida* when at rest, and when in motion moves much more rapidly than the *Spirochaeta pallida. Spirochaeta dentium,* seen in mouth preparations, is much more minute than the *Spirochaeta pallida.* Fibrin spirals have been mistaken for syphilitic spirochetes by inexperienced observers. In general it may be said that while the recognition of the organism of syphilis is not an affair for the tyro, a moderate amount of experience on the part of the examiner, coupled with the presence of numerous organisms of the above described type in a given preparation made under favorable conditions, is sufficient for a diagnosis of syphilis and the institution of appropriate treatment. Failure to find them, however, is no evidence that the lesion is not syphilis.

In all suspected cases, Wassermann tests should be made. It should be made a general rule that the first finding of a positive Wassermann reaction should immediately be confirmed by a second; but it is not necessary to delay beginning treatment until the second report is received. For the first ten days after the appearance of the chancre, the Wassermann reaction is usually negative. It is at this critical period that the establishment of the diagnosis of syphilis by demonstration of the specific spirochetes is of such importance, because it enables us to begin treatment while the infection is still relatively localized and can usually be aborted by thorough treatment. In suspected chancres in which spirochetes cannot be found, Wassermann tests should be made at intervals of a week, for a month, before it is decided finally that the case is not syphilis. In cases in which the spirochetes are found, a Wassermann test should be made at the outset, and if it is not positive, should be repeated at weekly intervals for the first few weeks to see if, in spite of treatment, it becomes positive. Further Wassermann tests should be made at about monthly intervals.

In no case should specific treatment be started until a positive diagnosis of syphilis has been made.

TREATMENT OF THE CHANCRE

Excision of the chancre is a procedure which theoretically should be useful, on the ground that it removes the important focus of infection. And when the location of the chancre is such that its excision will not cause deformity, surgical excision may be done; but excision of the chancre does not abort syphilis. The excised chancre should be preserved and sent for laboratory examination. Until the search for spirochetes is ended, the chancre should be treated only by cleansing with saline solution and covering with a compress wet with the same solution. As soon as spirochetes are demonstrated, if the chancre is not excised, it should receive an inunction of 33 per cent. calomel ointment twice daily for a week; it should be kept clean and protected by a calomel ointment or some bland protecting dressing.

SYSTEMIC TREATMENT

In the presence of early syphilis, treatment should be immediately started and vigorously pushed. It should be with both salvarsan and mercury. Before beginning there should be a preliminary survey of the patient's physical condition. Patients with acute febrile diseases, or with diseases of the liver, kidney or vascular system — when they are nonsyphilitic in origin — should be given salvarsan with caution.

SALVARSAN

There is agreement among syphilographers that the most effective time for producing radical results with salvarsan is in the first few weeks of syphilis — best before the Wassermann test becomes positive — and that salvarsan should be pushed at this time. But there is considerable difference of opinion as to how vigorously it should be pushed.

A safe vigorous course of salvarsan between extremes is advised. Such a course is a dose of from 0.4 to 0.6 gm. of salvarsan given at five day intervals until three doses are taken; after that at intervals of a week for five more doses, making a total of eight doses of salvarsan in a little more than six weeks.

It is possible that in cases seen before the Wassermann test has become positive, one such course of salvarsan combined with mercury may cure. But this is not safe to assume, and, in the light of our past knowledge of syphilis, it is advised even in these cases to repeat the course of salvarsan and mercury treatment at least once after a rest period of from six to eight weeks. Such patients should be subsequently watched for a year with monthly Wassermann tests and treated should any evidence of syphilis be discovered.

In all cases seen after the Wassermann test has become positive the first course of treatment should be followed by a second after six to eight weeks' rest. And it is safest to give at least a third similar course after an interval of two months even in the most promising of cases.

In all those cases in which a positive Wassermann test or any other evidence of syphilis remains, further courses of salvarsan and mercury should be given at intervals similar to the foregoing, the persistence in treatment to be determined by the findings in the individual case.

In place of salvarsan, neosalvarsan can be used in 50 per cent. larger doses. It may be somewhat less effective, but the difference is not sufficient to allow of dogmatic statements on this point.

The word "salvarsan" is used here for convenience, and is intended to cover the same product made in the United States and elsewhere under different trade names. Experience has shown that those furnished by responsible manufacturers are as effective as the original.

It may be repeated that the use of salvarsan is to be combined with that of mercury in the attempt at cure of syphilis; and that reliance is not to be placed on salvarsan alone.

PREPARATION AND CARE OF PATIENT

The urine should be examined before each injection of salvarsan. Salvarsan should be given with the patient's stomach empty, or nearly so. The treatments are best given at noon or in the early afternoon, the patient omitting lunch. He should remain quiet for the rest of the day — best in bed — and should take no food until the next morning.

SALVARSAN REACTIONS

Reactions after salvarsan are rarely of consequence. Many patients experience a degree of nausea six or seven hours after the injection, and occasionally they vomit, sometimes the vomiting being severe and prolonged. These reactions do not necessitate the abandonment of salvarsan, but they indicate that the further use of the drug should be guarded.

Occasionally immediate acute anaphylactoid reaction, such as edema and syncope, occur. These demand the intramuscular injection of from 5 to 10 minims of the standard 1:1,000 solution of epinephrin. This solution and a sterile hypodermic syringe should always be at hand for this emergency. In patients subject to such reactions, these occurrences may be prevented by the administration of epinephrin from ten to fifteen minutes before the injection of salvarsan.

In rare cases, patients respond after from twelve to thirty-six hours with a more or less pruritic erythema. This may go on, if salvarsan is pushed further, to a general exfoliative dermatitis with nephritis and dangerous intoxication, and is an indication for conservatism in the further use of the drug.

It is not uncommon to find a trace of albumin and a few casts in the next morning's urine after an injection of salvarsan. This is not a contraindication to the further use of salvarsan unless the albumin is present in considerable quantity and there are more than half a dozen casts to the slide.

The occasional ocular and auditory and other nerve symptoms in syphilitic patients are not manifestations of salvarsan poisoning, but of syphilitic lesions, and call for further use of salvarsan.

In general, the careful man is likely to attach undue importance to minor symptoms arising in the course of salvarsan administrations, and to be influenced too readily by them to give up its use in the particular case. On the other hand, a reasonable caution in the face of symptomatic warnings of salvarsan intoxication demands care in its further use in such cases.

TECHNIC OF SALVARSAN ADMINISTRATION

The fundamental principle of administering any form of salvarsan is a rigid asepsis, and only extreme conditions justify its administration when this is not obtainable. The apparatus should be boiled twenty minutes in distilled water. It is important that freshly distilled water be used for salvarsan solution. Twenty-five c.c. of water per decigram of salvarsan is a safe dilution. If the ampule has been immersed in mercuric chlorid, it must be carefully wiped before it is opened.

The drug is first dissolved in about 50 c.c. of *hot* water. If the water is hot, it dissolves easily. This yields a strongly acid solution, which must be neutralized and diluted before injection. Neutralization is accomplished after all the salvarsan is dissolved by a 15 per cent. freshly prepared solution of sodium hydroxid, which should be added drop by drop. Salvarsan is precipitated from the solution by the alkali, but redissolves as soon as the suspension becomes slightly alkaline. The point at which this occurs can be gaged with sufficient accuracy if the sodium hydroxid is added carefully and mixed after each drop or two. Since salvarsan oxidizes easily, it is undesirable to shake the material too vigorously while in preparation. As soon as the salvarsan has redissolved, yielding a clear yellow solution, it may be filtered through wet sterile cotton in a funnel directly into a graduated container; when hot or cold water is added to the proper dilution and to approximately body temperature. Care must be taken to fill the tube attached to the container with water and to expel all air bubbles before the salvarsan solution is filtered into the container.

In the event that the salvarsan precipitates somewhat on dilution, it may be redissolved by another drop or two of the sodium hydroxid. If the preparation has been made too strongly alkaline, a drop of dilute hydrochloric acid may be added and the neutralization repeated. The drug should be administered promptly after preparation, and no more than enough for use on the patients to be treated at the time should be prepared.

The technic of injection of the solution is comparatively simple, and the older custom of making an incision to find the vein, with its resultant scarring, has been abandoned by skilful operators. A variety of needles has been proposed, but the Schreiber 18-gage with thumb guard and a proper adapter, or even a plain needle, will answer all purposes. In difficult cases a finer needle may make it much easier to get in the vein. The skin over the field of operation, preferably in the region of the large cubital veins, is sterilized as for a surgical procedure, but if tincture of iodin is employed it is desirable to remove it with alcohol in order that the vein may be more easily seen. The injection should be given with the patient lying down and the veins distended by encircling the arm with a tourniquet.

In nervous patients, local anesthesia may be used to advantage. The needle is pushed directly through the skin over or to one side of the vein and then introduced into the vein. As soon as the blood returns freely through the needle, the adapter attached to the tube of the container is fitted to the shoulder of the needle, the tourniquet is released, and the injection begun by elevating the container about two feet. As a rule assistance is desirable, since the operator is occupied by keeping the needle in position in the vein. Failure to enter the vein is apparent by this method, before injection is begun, through the imperfect flow of blood through the needle. The sterile water contained in the tube allows sufficient warning of the infiltration of the tissues before the salvarsan solution reaches the needle point. Various forms of apparatus which inject saline solution as a test before beginning the injection of the salvarsan are not essential and are often complicated. A glass telltale in the rubber tube permits the operator to watch the progress of the injection. When the injection is completed, the lowering of the container below the level of the arm before the needle is withdrawn will aspirate a small amount of blood from the vein and prevent the escape of solution into the tissues. Only experienced operators, in this procedure, as in any other of a surgical nature, should attempt difficult cases.

Infiltrates, if they occur, are usually trivial, provided the operator has been on his guard. The escape of salvarsan into the subcutaneous tissues is indicated by a burning sensation, which the patient should be warned to report. The reaction which ensues when salvarsan is injected around the vein is inflammatory, with induration and infiltration, and may, if severe, progress to a slough. Salvarsan infiltrates should be treated by wet dressings, icebag, and, after inflammatory symptoms subside, by massage and passive move-

ment. An alarming degree of involvement may subside with practically no damage after several weeks or months. Thrombosis of the vein is an infrequent complication if the drug has been properly diluted, and should be treated on general indications.

THE TECHNIC OF NEOSALVARSAN ADMINISTRATION

The original administration of neosalvarsan, in dilutions similar to those used with salvarsan, has been greatly simplified by the injection of the dose in concentrated solution. In this procedure, the dose of neosalvarsan is dissolved in 10 c.c. of freshly distilled sterile water at room temperature — *not hot water.* The solution is drawn up into an all-glass syringe and administered as an intravenous injection after the usual preparations. The method is rapid and extremely convenient, and its applicability to difficult cases is apparent.

The solution of neosalvarsan being already neutral, it requires no addition of sodium hydroxid. Care must be taken to avoid infiltrates with the concentrated solution, but in general infiltrates with neosalvarsan are apt to be less serious than those with salvarsan.

MERCURY

For the cure of syphilis, salvarsan and mercury should be combined, and at the same time with each course of salvarsan a vigorous course of mercury should be given. This should begin at the same time or within a few days after the first dose of salvarsan.

A course of mercury should consist of six or eight weekly injections of an insoluble salt, or of thirty-five to forty-five daily inunctions of mercurial ointment. The administration of mercury either by inunction or by intramuscular injection is effective; and in the selection of either method one may be properly influenced by considerations of convenience and practicability.

INUNCTIONS

If inunctions are used, it is necessary to see that they are properly performed. Patients cannot be trusted to give themselves inunctions; but they can very readily do it for each other by sitting one behind another and having each man rub the back of the man in front of him. From 4 to 8 gm. of mercurial ointment may be used for a daily inunction. It is desirable before the inunction to wipe off the area to be rubbed with alcohol or to wash it lightly with soap and water and dry. The ointment should be rubbed in slowly and gently with the palmar surface for twenty or thirty minutes, or until the ointment is practically absorbed. Any excess should be allowed to remain on the skin. After six inunctions, a day should be skipped and the patient allowed a bath.

In giving inunctions, hairy surfaces and the thin skin of joints should be avoided, and the same area should not be used often enough to produce dermatitis. The two sides of the back furnish the most tolerant areas. The sides of the abdomen and of the chest, and the inner surfaces of the thighs, the arms and the forearms may all be used.

INJECTIONS

For injections, the preferable insoluble preparations are mercuric salicylate or calomel in oil, or metallic mercury in the form of gray oil. Perhaps the best proportion for the salicylate or calomel suspension is 20 gm. (weight) in sterile olive oil or thin liquid petrolatum, enough to make 100 c.c. (volume). A good formula for mercurial oil (gray oil) is redistilled mercury, 20 gm.; chlorbutanol, 2 gm.; anhydrous lanolin, 30 c.c., and liquid petrolatum, enough to make 100 c.c.

The intramuscular dose of calomel, salicylate and metallic mercury are the same. These three preparations, being of the same strength, have the advantage of having the same dose. The average dose of either, for an adult man, is 5 minims (0.06 gm., 1 grain) weekly; by graduations the dose may be increased to 0.12 gm. (2 grains) weekly, or with caution even higher.

The curative action of the injection of soluble salts of mercury is perhaps less than that of the insoluble. However, they are free from the dangers of cumulative effect which are inherent in the insoluble salts; and in emergencies, when there is need to get prompt, certain and vigorous effect of mercury, they are of great value. Mercuric chlorid or mercuric succinimid are the most useful soluble salts for injections. A good preparation is 1 per cent. mercuric chlorid or 1 per cent. mercuric succinimid with 1 per cent. sodium chlorid by weight in distilled water. The average dose is 25 minims (0.015 gm., ¼ grain) into the muscle of the buttock every second day.

TECHNIC OF INJECTIONS

For intramuscular injection, a syringe such as the all-glass Lüer hypodermic syringe with a 1½ inch, 20 or 22 gage needle is used. The needle should have a slip shoulder to permit of its easy detachment from the syringe. Sterilization of the skin with tincture of iodin is sufficient; emulsions once sterilized will remain so with reasonable care in their handling. In military service the syringe and needle should be sterilized by boiling, or by liquid phenol and the water or phenol removed by filling the syringe first with alcohol and then with ether.

The site of the injections is usually in the upper outer quadrant of the buttock, care being taken to avoid the region of the sciatic nerve or the structures about the hip joint. They can also be well given in the upper inner quadrant of the buttocks. Injections are made alternately into each buttock.

The needle with the syringe empty should be introduced to its full length, and the syringe then detached and filled with the necessary dose. This introduction of any empty needle is a safeguard against making an injection into a vein. If the dry needle should be in a vein, on detaching the syringe, blood would well up through it; if the needle remains free from blood, as is nearly always the case, there is reasonable security against introduction into a vein.

In general, in order to prevent leakage of the emulsion, it is desirable to introduce the needle on a slight slant in the tissue. This may be accomplished by drawing downward on the skin of the buttock, which permits a valve action as soon as the needle is withdrawn and the hand released. The injection if made slowly is practically painless. The development of infiltrates and nodules of any considerable size, or in any number, during a course of injections, is either a reflection on the operator's technic or shows the case to be unadapted to this form of treatment. Each of these nodules represents encapsulated mercury, and materially increases the danger of cumulative action. Daily massage by the patient will usually reduce them in a short time. If their formation cannot be prevented, the patient should be put on a rest period until they disappear.

CARE OF PATIENT WHILE TAKING MERCURY

Mercury as well as salvarsan throws a burden on the kidneys; and patients under intensive treatment with mercury and salvarsan should have the renal functions carefully watched. An examination of the urine for albumin and casts should be made weekly, and the development of definite nephritis during a course of treatment is an indication to stop. Treatment may be undertaken again after the nephritis has disappeared, but must be less vigorous than before and must be carefully watched.

Care of the mouth is a part of the general care which a syphilitic should have. Dental troubles should be looked after and the patient instructed in the care of the teeth. A dentifrice should be used, and it is a good plan to have the patients as a routine use an oxidizing mouth wash such as a one-half saturated potassium chlorate solution, or a diluted solution of hydrogen peroxid. When the gums are soft or unhealthy, a good astringent application is tincture of kino, one part, and tincture of myrrh, two parts, to be painted on two or three times daily, after brushing the teeth.

SALIVATION

If salivation should occur, the mouth should be cleaned at short intervals by washing with hydrogen peroxid solution or half saturated potassium chlorate solution. Compound solution of sodium borate (Dobell's solution) may also be used, and, while less effective, it has the advantage of being soothing. Pledgets of cotton or gauze moistened with boric acid solutions placed between cheeks and teeth give comfort and get rid of exudate. Atropin is useful, given to the point of reducing salivary secretion. If the patient has been using inunctions, he should, in order to get rid of mercury in the skin, be greased with an oil and then well washed with soap and water and put in fresh clothes. He should have a soft, nutritious diet, be protected from exertions, and given the care for exhausting illness. In particular, he should be given an abundance of water.

ESTIMATING THE COURSE OF CASES

During the early course of syphilis, a Wassermann test should be made at monthly intervals, and after it has apparently become permanently negative, it should still be repeated at intervals of two or three months for at least a year. It should be remembered that the Wassermann test is not likely to be positive for the first ten days of the chancre. After it becomes positive, the obtaining of a single subsequent negative reaction means little; it must remain negative over a period of months to justify the conclusion that it is permanently negative.

In estimating the effect of treatment on syphilis, not only the disappearance of specific clinical symptoms and of the positive Wassermann reaction should be considered, but the patient's general well-being as well. In zeal to sterilize a patient of spirochetes the effect of the treatment itself on the patient should not be overlooked, and treatment should not be pushed beyond the point at which the patient is able to tolerate it without distinct lowering of his general physical tone.

A patient may be regarded as free from the necessity for further observations or treatment who, under observation and with Wassermann tests at intervals of two months, has remained free from all evidence of syphilis for a year.

There is room for difference of opinion as to the advisability of spinal puncture or a provocative injection of salvarsan with a subsequent Wassermann test in every case before discharge. Conservative practice reserves the use of these diagnostic measures to cases in which there are special indications.

LATE SYPHILIS

The late manifestations of syphilis in the Army will be less common than the early. Gummatous lesions in the skin or bones or elsewhere, which may be cured without leaving any serious damage to the body, do not constitute a difficult clinical problem. In old cases of this sort, there is not the need for the intensive treatment administered in early cases. These patients should have mercury and potassium or sodium iodid until their lesions are cured. How much farther treatment should be carried is a matter for judgment in the individual case. The deep lesions of late syphilis — syphilis of the viscera, of the vascular system, especially of the heart or aorta, and of the central nervous system — indicate such serious impairment of the body that these patients will not be able to endure the strain of military life in the field. If the lesions in such cases can be controlled, it may be practicable to find duties for which the patients are still fit; otherwise, they should be considered for discharge.

New and Nonofficial Remedies

THE FOLLOWING ADDITIONAL ARTICLE HAS BEEN ACCEPTED AS CONFORMING TO THE RULES OF THE COUNCIL ON PHARMACY AND CHEMISTRY OF THE AMERICAN MEDICAL ASSOCIATION FOR ADMISSION TO NEW AND NONOFFICIAL REMEDIES. A COPY OF THE RULES ON WHICH THE COUNCIL BASES ITS ACTION WILL BE SENT ON APPLICATION. W. A. PUCKNER, SECRETARY.

THIOCOL-ROCHE. — Potassium Guaiacol-Sulphonate. — $C_6H_3(OH)(OCH_3)(SO_3K)$, 1:2:6.—The potassium salt of orthoguaiacol sulphonic acid, $C_6H_3(OH)(OCH_3)(SO_3H)$ 1:2:6.

Actions and Uses.—Thiocol-Roche acts as a sedative expectorant. It has the advantage over guaiacol in that it is comparatively tasteless, does not disturb digestion and is nontoxic. In thiocol-Roche the guaiacol is so firmly bound that almost none is split off when the salt is administered, and it is a question if its action is due to small quantities of guaiacol set free or to the guaiacol-sulphonic group as a whole.

It is claimed that thiocol-Roche is useful in the treatment of diseases of the respiratory tract, incipient tuberculosis and certain diarrheas.

Dosage.—From 0.3 to 1.3 Gm. (5 to 20 grains), dissolved in water or in syrup, or in the form of tablets.

Manufactured by F. Hoffmann-La Roche and Co., Basel, Switzerland (The Hoffman-La Roche Chemical Works, New York). U. S. patent No. 650,218 expired.

Syrup Thiocol-Roche.—A syrup containing thiocol-Roche, 10.5 Gm., in 100 Cc. (6 grains in a fluidrachm).

Thiocol-Roche Tablets, 5 grains.—Each tablet contains thiocol-Roche 0.3 Gm. (5 grains).

Thiocol-Roche is prepared by sulphonating guaiacol at a temperature not exceeding 70 to 80 C. with concentrated sulphuric acid, converting the guaiacol sulphonic acid produced into the barium salt, and this by decomposition with potassium sulphate into the potassium guaiacol-sulphonate.

Thiocol-Roche is a colorless, crystalline powder, neutral or faintly alkaline, odorless, and having a faint bitter taste. Thiocol-Roche is soluble in water, slightly soluble in ordinary alcohol, but insoluble in absolute alcohol and in ether or oils.

If to an aqueous solution of thiocol-Roche, barium chloride solution is added, no precipitate is produced; ferric chloride produces an intense violet-blue color, which disappears on the addition of ammonia, or of concentrated solution of alkali chlorides or sulphates.

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SATURDAY, SEPTEMBER 15, 1917

CIVILIZATION AND DETERIORATION

Nowadays, when one hears so much about the crimes of civilization as an almost unspeakable and inconceivable concomitant of the warfare of the assumedly intellectual nations, it may be informing, though not inspiring, to turn to the silent crimes of peaceful civilization. Maccaughey,[1] of the College of Hawaii at Honolulu, has given a depressing picture of the deterioration of the early Hawaiians, one of the finest physical types native in the Pacific and comparing favorably with the best from any part of the world.

In order to understand what the debasing influence of intercourse with the assumedly higher Caucasian peoples has wrought in undermining, with astonishing speed, the constitution of a once physically splendid race, it is essential to recall the Hawaiian of only a few generations ago. The details of bodily superiority need not be rehearsed here; but certain items of the Hawaiian customs and hygiene are worth inquiring about. The popular belief in the bad effects of inbreeding seems to be negatived by the physical superiority of the chiefs, who were often closely intermarried within their class. As is well known in the science of animal breeding, when dominant characters are desirable ones, it is an advantage to have them accentuated by inbreeding. The danger in this practice lies in the possible existence of inferior dominant features that are transmissible rather than in any inherent defect or danger in the intermarriage itself.

In speaking of the evidently healthy integument of the Hawaiians, Maccaughey says that in the ancient régime the better class of natives kept their skins in excellent condition through daily baths in the sea and in fresh water and by oiling the body with coconut oil. The effectiveness of such hydrotherapy is well appreciated today; but we fail to realize the unquestionable merit in the inunctions with oil that undoubtedly confer a suppleness and pliancy to the skin quite contrary to the extreme detergent action of the water bath. It is not without hygienic significance that the skin is normally lubricated by a sebaceous secretion which the bath tends to remove, often to a degree no longer compatible with a perfect epidermis. The value of massage was duly appreciated by the chiefs and women of rank among the Hawaiians; for they employed an exceedingly thorough and elaborate system which aided to keep skin and bodies in perfect condition.

The nervous temperament that is a by-product of our higher civilization and is characteristically American, leaves its mark in the muscular activities of our people. In emphasizing the beautiful muscular development and the absence of nervousness among the ancient Hawaiians, Maccaughey points out that this brings about an ease and grace with which the limbs are habitually moved. The gait of the men and women alike was almost invariably graceful, smooth and dignified, we are told. When we bear in mind the "nervous, jerky motions" that characterize so many moderns, it may well be asked whether a return to the older simplicity of life with its admirable poise is not worth debating in some respects. Perhaps the charm of some of the native dances with their graceful rhythms lies in the suggestion of a serene life devoid of civilization's stirring excitements.

To a people remarkably free from disease and disfigurement, the inroad of members of a different civilization has brought disease, drunkenness and debasing influences that have undermined the constitution of the race with astonishing speed. The primitive Hawaiian, with fine physical and mental traits of the greatest promise, is disappearing, Maccaughey writes, and in a few years will have vanished forever. Is this the civilization of peace?

1. Maccaughey, V.: The Physique of the Ancient Hawaiians, Scient. Month., 1917, 5, 166.

SPECIAL PREPARATIONS FOR THE MANAGEMENT OF HEAD INJURIES IN THE WAR

It is reported that approximately 20 per cent. of the bed capacity of the base hospitals in the war zone is occupied with cases classified as surgery of the head. This can readily be believed since warfare has become almost wholly of the trench variety, in which the head is particularly exposed and for which reason all the armies have adopted the steel helmet instead of the ordinary head-gear. Even in time of peace 12 to 15 per cent. of the conditions treated in an army general hospital are classified as eye, ear, nose and throat cases. This does not include the cases requiring brain and oral surgery. In view of the number of these and their importance, as shown by the experience of our allies, the Surgeon-General of our Army is making special preparations to take care of these cases according to the best and most recent methods. These include the provision of a specially trained personnel and adequate equipment near the front. In order to work out this program the Surgeon-General has created a spe-

cial section on Surgery of the Head, including divisions for the special organs — eye, ear, nose and throat, brain, mouth and teeth. This section, with headquarters in the Surgeon-General's Office, is under the general direction of Lieut.-Col. T. C. Lyster, and is divided into four divisions — ophthalmology, otolaryngology, brain, and oral and plastic surgery. Associated with Colonel Lyster as advisory committee are members of the Medical Reserve Corps representing the various specialties, each of whom is a member of a subcommittee of the General Medical Board of the Council of National Defense.[1] Through this advisory committee and its subcommittees, qualified men throughout the country who have been commissioned in the Medical Reserve Corps have been secured for service in their specialties.

In order that this work shall be done in the most effective manner it is planned to have one hospital established in France which shall be devoted entirely to head injuries. To this hospital all such cases are to be evacuated when deemed to be to the best interest of the service and of the wounded soldier. This hospital is to have a capacity of perhaps one thousand beds, and is to be accessible — in reality an adjunct — to the various base hospitals. The institution is to be complete with laboratory Roentgen-ray apparatus, shops and a mechanical division for reconstructive apparatus. It is hoped to follow the steps of the English Army and to furnish the men with spectacles from a standard lens grinding department.

For years, the type of specialized and expert service here described has been available in civil life; it is now to become a practical part of the practice of military medicine and surgery. It means not only the saving of lives, but also better care of these most dangerous and disfiguring of all wounds of war.

1. The following compose this advisory committee: Major N. M. Black, Milwaukee, Wis., Ophthalmology; Major H. P. Mosher, Boston, Oto-Laryngology; Major V. P. Blair, St. Louis, Oral and Plastic Surgery, and Captain Charles Bagley, Jr., Baltimore, Brain.

SOME UNDERAPPRECIATED MENACES OF THE ORGANIZATION OF ARMY RECRUITS

The concentration of large numbers of men in the new army cantonments has suddenly furnished novel and hitherto little appreciated problems of medical import. The proximity of so many persons from many parts of the country and widely different communities means opportunities for the transmission of contagion on a large scale, and compels the institution of rigorous means of combating it. Diseases that ordinarily occasion comparatively little worry to the sanitary officer, because they occur in isolated instances in which effective control can be instituted as soon as the danger is recognized, assume a more threatening aspect when they make their appearance in the midst of people who are crowded together.

Surgeon McMullen[1] of the Public Health Service has recently pointed out a danger of this sort incident to the enlistment of recruits affected with trachoma. Although the prevalence of this disease has been so great in the armies of past European wars that trachoma was at one time termed "military ophthalmia" and believed to be confined to soldiers, it is today recognized as having a far more universal significance. Nevertheless few physicians realize the widespread distribution of trachoma in the United States. Only a few years ago the Indians of this country were found to be almost universally affected. Indeed, so prevalent and extensive is the infection in some sections of the United States that the Public Health Service has established and maintains in those sections six ophthalmic hospitals for the treatment of trachoma, which is classed by the government as a dangerous contagious disease. According to McMullen,[1] these hospitals have now been in operation for several years and, during the past year, a total of 18,530 patients were treated; 1,880 patients were admitted to the hospitals, and 1,687 operations were performed. Trachoma thus appears as a public health menace to which the new conditions established by our National Army must become adjusted before the disease establishes many foci. The schools may be invaded, now that the summer vacation is past. Fortunately the malady is a curable one. Physicians who seldom if ever have had occasion in the routine of their past experience to come in contact with trachoma should familiarize themselves with the clinical symptoms as an act of preparedness for an undesired possibility.

Casual observations made by Dr. Stiles[2] of the Public Health Service have emphasized even more strongly than before the importance of providing against the spread of infection with intestinal parasites. These are more insidious because the damage or deterioration which they may cause is not so easily recognized by a physical sign or symptom in the patient afflicted. Stiles reports that in a total of seventy-five military recruits recently examined by him at a government reservation, forty-seven men (63 per cent.) showed hookworm infection, three *Ascaris lumbricoides*, one *Hymenolepis nana*, and one a heavy infection with *Strongyloides;* two recruits had double infections; twenty-five examinations were negative. He points out that a failure to treat the hookworm cases and to eliminate at least the severe infections of *Strongyloides* will undoubtedly result in unjust and preventable punishment for offenses due to remediable conditions, considerable physical and mental inefficiency, an unnecessarily high daily "sick call," and premature and preventable pensions. Furthermore, the military aspects of the situation offer sobering

1. McMullen, J.: Trachoma and the Army, Pub. Health Rep., 1917, **32**, 1101.

2. Stiles, C. W.: Certain Military Aspects of Hookworm Disease, Pub. Health Rep., 1917, **32**, 1299.

reflections. The danger is present, says Stiles, that our military forces may cause a widespread infection in France and Belgium that it will take years of work and large expenditures of money to control and eradicate after the war.

The menace from hookworm and allied disorders is, of course, greater in the case of recruits from the warmer portions of the country than from men living in colder localities. Vigorous treatment in all hookworm cases following their detection by systematic examination for intestinal parasites is an obvious solution of many of the difficulties involved. Skilled microscopists are demanded for the work; and the numbers of those competent is still small. In critical times it is not always easy to determine what prophylactic or hygienic procedures should take precedence. Stiles believes that even leaving out of consideration the money value of increased efficiency, the entire expenditure involved in the examination would be saved in the reduced pension roll. It is certain, however, that the stay-at-home colleagues must prepare themselves quite as well as the medical officers with our forces to recognize the new menaces and needs of great bodies of men shifted about this country through the creation of an inevitable situation.

SURGERY OF THE HEAD IN WAR

Early in the war, there was a wide divergence of opinion as to when and where operations for head wounds should be performed. Sir Anthony Bowlby and Cuthbert Wallace,[1] consulting surgeons to the British Armies in France, have now reviewed the developments in the treatment of head wounds since the beginning of the war. In the first year, the rule was for surgeons, called on to treat head injuries, to operate at once. Apart from the physical defects, many of the patients seemed to be suffering from compression. The operations were performed both at casualty clearing stations and in field ambulances. Many septic complications were being seen in the base hospitals, and it was noted that the patients who, from force of circumstances, arrived at the base without previous operation did better than those operated on at the front. This at first was attributed wholly to faulty technic. Later it was found that if patients were kept quiet in the hospital in which they were operated on, they did well, while those who were evacuated to the base, even though apparently doing well at the time, arrived at the base in bad condition. These faults were corrected by the utilization of the obvious corrective measures, namely, improvements in technic and later evacuation.

The next important step was the establishment of special hospitals for head cases at the front. By this means patients were given the advantages both of early operation and of prolonged rest. A standard method of treatment of head injuries has thus been developed. In brief, it consists of a primary cleansing of the wound, the transmission of the patient as soon as possible to the hospital in which he will remain until convalescent, the making of roentgenograms, the excision of the scalp and bone wound, a careful removal of foreign bodies, the covering of the exposed brain, the closure of the wound, and prolonged rest in bed.

Dr. Harvey Cushing is of the opinion that craniocerebral wounds are not usually to be considered as cases requiring immediate surgery, unless there is extensive hemorrhage, and these are practically hopeless. Patients treated at a field ambulance are apt to suffer from complications after their evacuation, not because of having been transported, but as the result of incomplete procedures before transportation. The external appearance of the wound is rarely to be considered as an indication of what surgical procedure should be performed. Trivial wounds may require extensive operations, and vice versa. Bowlby recommends special hospitals for these cases of head injury, and as the result of experience, such hospitals have been developed by the British Army Medical Department.

G. H. Makins[2] examined a considerable number of patients after their return to England, and he found that the mortality among this class was small; that later complications, such as cerebral abscess, are comparatively rare, and that serious sequelae, such as insanity and epilepsy, are not common. Many patients with foreign bodies deeply lodged in the brain recovered. These and other observations emphasize strongly that first aid is not indicated in cases of head injury, except as concerns the external wound, and that treatment, in a special hospital, equipped and manned by specialists, will yield the largest number of recoveries and the fewest complications and sequelae, even though this hospital may be far removed from the front.

1. Bowlby, Sir Anthony, and Wallace, Cuthbert: The Development of British Surgery at the Front, Brit. Med. Jour., June 2, 1917, p. 705.

2. Makins, G. H.: Development of British Surgery in Hospitals on Lines of Communication in France, Brit. Med. Jour., June 16, 1917, p. 789.

Mixed Infection in Epidemic Meningitis.—A. Netter found the diplococcus along with the meningococcus in the cerebrospinal fluid in five cases of epidemic meningitis, and has learned of seventeen similar cases in neighboring hospitals. They were all encountered since last January. The list includes one infant, nine children and twelve adults from 17 to 60 years old. All died except one child of 5, the infant, and one young adult. In five of the fatal cases there was also bronchitis or pneumonia. Since then he has made a practice of injecting 2 or 3 c.c. of antipneumococcus serum when injecting antimeningococcus serum in cases of meningitis, and reports that only two of the nineteen patients thus treated showed the pneumococcus in the cerebrospinal fluid, and in these the disease seemed to be mitigated, both patients recovering. This mixed serotherapy was given also to six children with meningococcus meningitis in a neighboring hospital and none showed pneumococcus invasion, while the pneumococci were found in one of three other meningitis children not given the antipneumococcus serum.—*Bulletins*, 1917, **41**, 789.

Current Comment

PROGRAM OF PREPAREDNESS IN THE ARMY MEDICAL DEPARTMENT

We comment elsewhere on one of the important divisions of the general program of preparedness that is being developed by the Surgeon-General and his associates — that on surgery of the head. In addition to this and the section on venereal diseases, the program of which we have already outlined, there are divisions on internal medicine, hospitals and ambulances, laboratories, general surgery, orthopedic surgery, etc. The programs of all these divisions are practically worked out, and will be taken up in THE JOURNAL from time to time. There is also being outlined a general program for reconstruction and rehabilitation, to include training for special vocations. Our people may rest assured that every provision is being made for the protection of the health of our soldiers, both in this country and abroad, and that the wounded — the disabled and the disfigured — soldiers will be returned to civilian life in as perfect condition as modern medicine and surgery make possible. Further, plans are being worked out for the restoration of those who may be so disabled as to be unfit for their regular calling. This program proposes the training of such men for some special life-work, adapted to their changed physical condition. In the working out of these programs the Surgeon-General has called to his assistance the best trained men in every branch of medicine. It is becoming a fact, as one has expressed it, that if one wants the best advice in any branch of medicine or surgery, one will have to go to the Army for it.

BACK TO THE SIMPLE LIFE

In our grandfather's day it was usual to have the bread on the table and bread was cut as needed; also it was considered wasteful to leave food on one's plate. The vital need today for conserving food has caused the United States Food Administration to urge, among other measures looking toward the elimination of waste, the preaching of the gospel of the clean plate and a resurrection of the old plan of cutting bread on the table. The by-products of war are not all evil.

KIDNEY CURES

A few years ago a quack, in a Rufus Wallingford attempt to convince druggists that they would find in his nostrum a veritable gold-mine, said, with a burst of advertising candor: "Fully 75 per cent. of all . . . kidney remedies are bought by people who THINK they have . . . some serious kidney ailment . . . and not by people who actually have them." There stood truth, naked and unashamed. The "patent medicine" man was telling tales out of school. His frankness in giving away one of the most cherished secrets of the "patent medicine" business constituted a violation of "patent medicine" ethics of the gravest kind if not, indeed, *lèse majesté* against the Proprietary Association. The selling of alleged cures for the self-treatment of so serious a condition as kidney disease is one of the many rotten branches of an industry that is more than 99 per cent. discreditable. The trade in "kidney remedies" stands condemned, not only because the self-treatment of kidney disease is fraught with danger, but also because, in order to make such nostrums commercially profitable, it is necessary to convince the public, through playing on its fears or on its ignorance, that any one of a score or more of common and unimportant symptoms is a positive and deadly indication of kidney disease. A "patent medicine" of this type is dealt with in the Propaganda Department of this issue. "Dr. Pierce's Anuric Tablets" emanate from the "World's Dispensary Medical Association" of Buffalo, an emporium of quackery better, but no more creditably known through the sale of such nostrums as "Dr. Pierce's Favorite Prescription," "Dr. Pierce's Golden Medical Discovery," "Dr. Pierce's Compound Extract of Smartweed," etc. "Anuric" is proclaimed as the "Newest Discovery in Chemistry"; it is not a chemical discovery at all. It is said that "Eminent Medical Authorities Endorse It"; no medical authority of eminence would touch the thing with a ten-foot pole. It is claimed to be the "Wonderful Discovery" of a "Famous Physician"; the only apparent discovery connected with the stuff seems to be that made by the exploiters that there is money to be made in selling alleged cures for kidney disease. The "famous physician" enjoys a professional fame of the same quality and type as that which characterized Hartman of "Peruna" or Munyon of sugar pills. "Anuric" is an unscientific mixture sold under false and misleading claims. It is invested with the mystery that is so necessary an element of the "patent medicine" trade by the usual device of keeping its composition secret. "Scare" advertisements are supplemented by booklets that may be counted on to convince any but the most well-balanced that trivial and commonplace symptoms of passing indispositions are portentous of kidney disease. In short, "Anuric" and its method of exploitation conform to all the orthodox principles of quackery.

WAR ECONOMY

It is interesting in these times of high prices to recall the way in which real Americans like Asa Gray, Lowell and Emerson met the financial pressure of the Civil War. It is pleasant, too, to think that cheerful sacrifice and unbending resolution in a righteous cause are part of the inheritance of our race. "My wife and I," wrote Asa Gray in 1862, "have scraped up $550, all we can scrape, and lent it to the United States." Lowell wrote, in a private letter, "I had a little Italian bluster of brushwood fire yesterday morning, but the times are too hard with me to allow of such an extravagance except on the brink of gelation." "The first of January," wrote Emerson in 1862, "has found me in quite as poor a plight as the rest of the Americans. Not a penny from my books since last June, which usually yield five or six hundred a year; no dividends from the banks or from Lidian's Plymouth property. Then almost all income from lectures has quite ceased, so that your letter found me in a study how to pay

three or four hundred dollars with fifty. . . . I have been trying to sell a wood lot at or near its appraisal, which would give me something more than three hundred, but the purchaser does not appear. Meantime, we are trying to be as unconsuming as candles under an extinguisher, and 'tis frightful to think how many rivals we have in distress and in economy. But far better that this grinding should go on bad and worse than we be driven by any impatience into a hasty peace or any peace restoring the old rottenness."[1] The last sentence in Emerson's letter is finding many echoes today.

THAT DEADLY PSORIASIS

Many and various are the excuses offered to support the claims for exemption from military service. One of the latest to be given publicity is that made by a man who offered affidavits from two physicians setting forth — to quote from newspapers — that his wife "was suffering from psoriasis, a skin disease which they [the physicians] averred was incurable and which, if not given proper care and treatment, might prove fatal." That psoriasis may be incurable can be readily granted; so also may be baldness and pigeon-toes — and about as fatal.

EMETIN DIARRHEA — A DANGER

Most drugs harbor dangers that express themselves when proper dosage is exceeded. Pharmacodynamic effects produced by potent substances do not remain restricted to those manifestations that are therapeutically advantageous. A weak concentration of hydrochloric acid, for example, such as is found in the gastric juice, is a physiologically advantageous solution at times; but concentrated hydrochloric acid is an irritant of the most dangerous sort. These facts are sometimes forgotten when undue enthusiasm is awakened for some new or hitherto little used drug. As a result, the borderline of physiologic safety may easily be overstepped through disregard of the knowledge that a large dose of a chemically active substance is not proportionately better because a small one is useful. Lately emetin has acquired considerable prominence in the field of medicine; and at length the reports of its dangers are following the stories of its virtues. Hemorrhagic gastro-enteritis has been produced experimentally with emetin by a number of investigators.[2] From the Harvard Medical School in China[3] additional reports have lately come to verify the fact that emetin not rarely produces a bloody diarrhea in the course of its clinical use. In discussing the danger which this involves, Kilgore and Liu remark that the difficulty in the recognition of diarrhea from emetin, as well as its danger, is due to the fact that it occurs in the course of treatment for amebic dysentery, and that the symptoms and the gross appearance of the stools in emetin diarrhea are almost indistinguishable from those in amebic dysentery. All of the cases reported from China were in children that had received doses of emetin hydrochlorid considerably larger than would be proportionate on a basis of 1 grain (65 mg.) for an adult. Contrary to a somewhat prevalent opinion, children are not especially resistant to the drug, so that the dosage for them should be graduated with great care.

1. Rhodes: History of the United States, **3**.
2. Levy, R. L., and Rowntree, L. G.: On the Toxicity of Various Commercial Preparations of Emetin Hydrochlorid, Arch. Int. Med., March, 1916, p. 420. Dale: A Preliminary Note on Chronic Poisoning with Emetin, Brit. Med. Jour., Dec. 18, 1915, p. 895. Pellini and Wallace; Pharmacology of Emetin, Am. Jour. Med. Sc., 1916, **152**, 325.
3. Kilgore, A. R., and Liu, J. H.: Emetin Diarrhea—Clinical and Experimental, Arch. Int. Med., August, 1917, p. 78.

FOOD CONSERVATION

Some one has said that the present world war will be won as much in the kitchen as on the battlefield. There is an element of truth in the statement. When this fact is realized the importance of the United States Food Administration will be understood. This body has a huge task before it and is meeting it. Two important publications just issued by the United States Food Administration are the "Home Card" to be hung on the kitchen wall, and the general directions for hotels, restaurants, dining cars, etc. The last is in the form of a leaflet and will be of especial interest to stewards of hospitals, asylums and sanatoriums. The superintendents of such institutions should write to the United States Food Administration at Washington for copies of these leaflets and should impress on their subordinates the benefits, both to the institutions and to the country, that will accrue from following the directions given. Every physician who has a home of his own should send for a copy of the "Home Card" for personal use and should lose no opportunity of urging his patients to do the same thing. This is one way in which we can all do a little "bit."

CIVILIAN COOPERATION IN COMBATING THE VENEREAL DISEASE PERIL

Two weeks ago, in discussing the venereal peril of our army, we called attention to the importance of cooperation between the civilian physicians in the community surrounding the camps and the medical officers in the cantonments. It is encouraging to know that many communities are already in action. A circular received from the health officer of Jackson, Mich., calls for a conference at Jackson of the administrative, health and police officials of the principal cities of southern Michigan, and representatives of the civil and military authorities responsible for the government of training camps, together with delegates from the medical profession, labor organizations, commercial associations and others interested in helping to do their part in this new program. A committee headed by Governor Stewart of Virginia is distributing a special folder on the subject in training camps and surrounding zones in that state. The California State Board of Health has outlined a definite program and has made a large appropriation to carry it out in a practical manner. New York City and the state have been exceptionally active in attacking the problem from every point of view. Everywhere are signs of a tremendous awakening to the new responsibility devolving on the public and especially on the medical profession in regard to these matters.

Medical Mobilization and the War

EXEMPTION OF MEDICAL STUDENTS AND INTERNS

Method of Procedure

An intern or medical student called by his local board and accepted for service under the Selective Service Law but not ordered to military duty may apply to the Surgeon-General of the Army to be ordered to report at once to the local board for military service; to be inducted at once into the military service of the United States; immediately thereon to be discharged from the National Army for the purpose of enlisting in the Enlisted Reserve Corps of the Medical Department.

NECESSARY PAPERS

Each such request must be accompanied with (1) copy of the order of the local board calling the intern or medical student to report for physical examination; (2) sworn evidence of the status of the applicant as a medical student or intern; and (3) an engagement to enlist in the Enlisted Reserve Corps of the Medical Department.

FORM OF NECESSARY PAPERS

No blank forms have yet been provided for the application and the affidavits called for. A clear and succinct statement embodying the necessary facts and duly sworn to before a notary public will be sufficient. The intern or student should appear before an officer authorized to administer oaths and sign an acknowledgment of his application to enter the Enlisted Reserve Corps on release from his obligation to enter the National Army under the draft. Incorporated in the acknowledgment should be an affidavit showing his status as an intern or medical student.

AFFIDAVIT FROM HOSPITAL SUPERINTENDENT OR DEAN OF COLLEGE REQUIRED

An additional affidavit showing the status of the intern should be obtained from the medical superintendent of the hospital in which he serves. In the case of a student, an affidavit should be obtained from the dean of the medical college as to the status of the student.

The superintendent or dean must obligate himself to make such future reports as the Surgeon-General may require.

AFFIDAVIT OF INTERN MUST INDICATE DATE SERVICE BEGAN

An intern's affidavit should show the date he began service.

AFFIDAVIT OF MEDICAL STUDENT MUST SHOW GRADE AND STANDING

A student's affidavit should show whether he is in the second, third or fourth year of his medical course, and what conditions, if any, are outstanding against him.

PROCEDURE

If the Surgeon-General acts favorably on an application he will forward it to the Adjutant-General of the Army with his recommendation. The Adjutant-General may issue an order directing the intern or student to report to his local board for military duty on a specified date. This report may be in person, by mail, or by telegraph. From the date of such report the intern or student named will be considered as in the military service of the United States. The Adjutant-General may forthwith issue an order discharging the intern or medical student from the military service for the convenience of the government.

STUDENT SUBJECT TO DRAFT UNTIL DISCHARGED

No intern or student will be excused from reporting to his medical board or from assuming his duties under the Selective Service Law, including that of reporting at the assigned mobilization camp, until after the receipt of an order from the Adjutant-General, as has been described. After making application for discharge from duty under the Selective Service Law and on the receipt of such discharge, the intern or medical student must perform every duty required of him under the law.

DURATION OF INTERNSHIPS

No internship will be recognized for a period longer than one year from the date of its commencement.

INTERNSHIPS NOT INCLUDED

(1) Internships in hospitals conducted for gain; (2) internships in private hospitals of fifty beds or less, and (3) internships that have been created since May 18, 1917, except to meet the needs of hospitals actually established since that date, or bona fide enlargement of hospitals since that date, will not be recognized.

RELATION OF ENLISTED RESERVE CORPS TO MEDICAL RESERVE CORPS

Application for enlistment in the Enlisted Reserve Corps of the Medical Department and enlistments in that corps will not interfere with the application by an intern or by a student after graduation for a commission in the Medical Reserve Corps.

DEFINITION OF A WELL RECOGNIZED MEDICAL SCHOOL

For the present a medical school recognized generally by state examining boards will be considered as a well recognized medical school.

TERMINATION OF EXEMPTION

An intern or student who loses his status as such, and a student who fails to pass from one class to another or to graduate, will be called into active service as needed.

PENALTY FOR FAILURE TO COMPLY WITH OBLIGATION

An intern or medical student who fails to comply with his obligation to enlist in the Enlisted Reserve Corps after discharge from duty under the Selective Service Laws will render himself liable to punishment under that law.

SURGEON-GENERAL'S PROGRAM FOR MANAGEMENT OF INJURIES OF THE BRAIN, EYE, EAR, ETC.

The Surgeon-General has authorized the formation in one section of units devoted to the surgery of the head, to wit: (1) brain; (2) eye; (3) ear, nose and throat; (4) mouth. Major T. C. Lyster, M. C., U. S. Army, chief of the section, has just reported its activities to the Surgeon-General. "The physical disasters which the present war occasions are more severe and more specialized than those of any other war," he says. In order that these disasters be mitigated and checked, there must be a new alignment of medical and surgical service. "The men who fight have a right to expect that the physical distress which such combat entails shall be alleviated by means as scientifically accurate as those which can be commanded by the civil population." To this problem the Surgeon-General, with the support of the Medical Section of the Council of National Defense, has authorized the formation of units devoted to the surgery of the head.

The justification of the organization of such units resides in the fact that their component parts represent special departments of surgery which have made notable advances. Their practice requires training along special lines, and especially of military surgery. They are gathered into one unit because they represent a natural selection, each supplementing and aiding the other in an effort to restore the individual to physical well being. "The vital necessity of ophthalmoscopic examination by the ophthalmologist in the work of the brain surgeon"; says Major Lyster, "the need of prompt release by the brain surgeon of increased intracranial pressure to save eyesight; the value of expert examination of the ears by the trained otologist in the elucidation of the problems of neurology and cerebral surgery; the need of search by the expert rhinologist and oral surgeon for foci of infection in the accessory sinuses, the tonsillar tissues and the dental areas, are well known. For years this type of specialized and expert work has been at the disposal of the practice of medicine and surgery in civil life; for the first time in history it has become an integral part of the practice of military medicine and surgery."

"The service of such specialized surgery as has been described," he says, "may proceed along three lines:

"1. Immediate service, or what is ordinarily known as first aid, to be given at the first dressing station. Time is of vital importance in dealing with many head injuries, involving lesions of its special organs, notably of the eye, and many eyes have been saved which otherwise would have been lost where it has been possible to act at once. As to the accuracy of this statement all eye surgeons who have been at the front will testify.

"2. Later service in the base hospital where all operative procedures of these types of special surgery can be brought into deliberate action. The triumphs of oral surgery in particular, are matters of common knowledge and of scientific record and the same is true of the procedures of cerebral surgery and of those of the eye and ear.

"3. Final service in special hospitals devoted to reconstruction and reeducation. In such hospitals the work of the department of the surgery of the head will find and has found one of its widest and most important fields of action, not only in individual work, but in the work devoted to those who must be trained for special duties in these regards. For the purpose of making a personnel available for the tasks outlined a committee has been formed which has mobilized the material according to definite plans."

A questionnaire so worded as to give the special training and experience of the men addressed has been sent out, and those who can qualify are urged to join the Medical Reserve Corps so that they can be assigned to the division representing their specialty. Letters were sent to 9,000 ophthalmologists, 5,000 otolaryngologists and 350 surgeons specializing in brain surgery. Probably several hundred men specializing in oral surgery will be asked to give their services. Men of known integrity were selected in each state to furnish confidential information. Members of the Medical Reserve Corps wishing immediate service have been recommended to make application to the Surgeon-General for assignment to one of the Medical Officers' Training Camps for instruction in the administrative duties so necessary for the proper carrying on of the Medical Department of the Army. All the specialists who have already applied for and received commissions in the Medical Reserve Corps have been indexed separately and put on a retained list so that so far as possible they may be used in the line of their specialty. Methods of procedure, tests, lists of instruments and working space have been outlined by each division. The Brain Surgery Section has established district boards throughout the states and outlined plans for the establishment of special schools for the instruction of surgeons classified in this section. The course will be arranged along an anatomic, clinical and operative line and will extend over a period of from four to six weeks. These schools probably will be established in Chicago, Baltimore, Philadelphia and New York and will be directed in each instance by an eminent brain surgeon.

The Division on Oral Surgery has outlined a tentative plan for a short, intensive course of special instruction in oral surgery for general surgeons, and plans have been suggested in individual cases for helping men on base hospital units, who expect to be called out in the near future, for especially preparing themselves for doing oral surgery. It is suggested that the surgeon in charge of oral surgery shall, unless otherwise specified in individual instances, have charge of injuries and surgical diseases of the mouth and its essential structures, including the bony framework and soft structures of the face, and also of the neck when the major part of the surgery is situated above the clavicle. This does not include injuries and surgical diseases of the orbit, its contents and appendages, the external nose, ear and accessory sinuses, pharynx, thyroid diseases, and special cases of injuries of the peripheral nerves and spinal column. Sufficient provision is made for the activities of specialists and consultations in all cases, when necessary. The surgical field of three of the divisions of the Head Surgical Section (eye, ear, nose, throat and brain) are clearly defined. The field of oral surgery has not been quite so defined as to prevent possible confusion in the cantonments, base or other hospital units here and abroad.

DR. BILLINGS IN RUSSIA

A letter just received at Red Cross headquarters gives an interesting account of the arrival of the Red Cross mission to Russia at Vladivostok, and its journey in the imperial train across Siberia to Petrograd.

THE LETTER

"The party arrived at Vladivostok on the morning of July 26," says the letter. "As soon as the ship docked it was boarded by a large group of officials and military personages who made their way to Dr. Billings, head of our commission, to offer a welcome to Russian soil. There were present the head of the provisional government, the mayor of the city, the military commander, the military medical officer, the officer of the port, and representatives of the national and local Red Cross.

DR. BILLINGS' GREETING

"Dr. Billings' words fell with gratifying effect on his hearers when he responded to the enthusiastic welcome. He said:

We have come a long distance, my friends, to see if we can do anything commensurate with the deep sympathy which is felt in our Republic for this new Republic whose representatives you are. The hearts of the American people go out to you in your hour of trial—for it is an hour of trial. They have given largely and spontaneously, and are willing to give more largely yet. We have come to you in all modesty thinking we might be able to help your wounded and sick soldiers and extend relief to your sick and needy civilians who have suffered from the war. With the political problems which you are working out in your own way we have nothing to do, except to give you our heartiest good wishes. We are here to help in the ways in which we can help, and I thank you for your generous welcome and for the cooperation which you offer. We are going to Petrograd as quickly as our supplies can be transferred from the Russian ship which brought us to the Russian train which we see waiting for us.

"The landing at Vladivostok was made about noon. Then ensued ten hours of hard work incident to the landing of a large party and a considerable cargo from ship to shore and thence to train. This work was greatly facilitated by the American consul, Mr. Caldwell, and his assistants. The Russian Red Cross sent Col. George Landou to have charge of the train. It was the train which had brought Mr. Root and the members of his commission back from Petrograd only a few days before. The minister of communications sent as his representative Gen. Vibold Ertel, who had been with the Root mission throughout its travels, and we were also provided with the interpreters who had served the Root mission. The British officials, Colonel Dunlop of the consular service, and Major Binus of the British patrol, were of the greatest assistance to the party and the baggage and supplies were all passed without examination.

"It was a hot afternoon and evening in Vladivostok. There were cables to be answered and hundreds of details to attend to before we could proceed westward. Some necessary printing had to be done in a hurry, loads of supplies and equipment had to be transferred, medical supplies had to be examined and repacked. Finally at 9:45 o'clock that night the imperial train departed for Petrograd bearing our party.

"Throughout the journey through the noble landscapes of Manchuria and Siberia at every stop the greatest interest was shown by the people. The train was decorated with a large placard bearing the Red Cross emblem and the following inscription in Russian: 'American Red Cross Mission to Russia. Hospital Supplies.' It was interesting to watch the crowds at station stops gather and read this notice, and then nod in pleased satisfaction as comment was murmured from man to man. As the train left each station it was roundly cheered, and at Harbin there was a great demonstration.

ADDITIONAL SUPPLIES FROM JAPAN

"The train consists of nine cars, four of which are laden with supplies and baggage. The stock of serums and medicine brought from Chicago and New York was amplified by a large purchase of vaccines and other materials at Yokohama. One box contains enough cholera serum to immunize 100,000 persons.

"Everywhere the mission has gone it has been received with open arms. Much light has already been obtained as to the medical needs of the Russian people, and these facts are being promptly communicated to the Red Cross War Council in Washington."

Though written on July 27, says the *Official Bulletin*, from which we quote, the letter did not reach Washington until the first week in September. It traveled by courier from Siberia to Peking, and from there by diplomatic pouch, finally reaching its destination by the Pacific route.

NEWS OF THE TRAINING CAMPS

At Fort Riley

A number of the instructors of the Medical Officers' Training Camp have been ordered away on special assignments. Lieut.-Col. C. R. Reynolds, M. C., has been ordered to Yaphank, Long Island, as division surgeon. Lieut.-Col. Jacob M. Coffin, who has been director of ambulances and whose enthusiasm for "hiking" has caused the course in equitation to be known throughout the camp as "the Coffin Course," has been appointed division surgeon at Deming, N. M. Lieut.-Col. C. R. Snyder has gone to Anniston, Ala., as division surgeon, and Lieut.-Col F. W. Weed has been made division surgeon, with headquarters at Camp Funston, Kan.

INSTRUCTORS FOR THE SECOND CAMP

A number of reserve officers in the first school of instructions have been detailed as instructors for the second course, among them being Majors P. B. Cook, G. G. Davis, Ralph W. Webster and Charles S. Williamson, Capts. H. L. Akins, J. M. Downs, Ellis K. Kerr, S. E. Lambert, W. L. McBride, L. S. Milne, H. C. Parker, J. C. Sessions and J. G. Shewbrooks.

ATHLETICS AND SPORTS

Lieut. F. H. Dammasch, M. R. C., who has been appointed athletic manager for the camp, has arranged for boxing and wrestling matches every Wednesday evening. Representatives of different companies and troops meet in athletic contests which have proved extremely popular. A large audience is assured for each evening's exhibition.

ACTIVE DUTY FOR MEN IN FIRST COURSE

Companies I, II and III, which began work June 16, have been assigned to active duty. One of the distinct achievements of the camp was the sending out of between 200 and 300 medical officers to posts all over this country, and some to foreign assignments, without any confusion or delay. In fact, the assigned men left the camp ahead of their schedule. The smoothness and celerity with which this work was done reflect great credit on Colonel Bispham and his staff.

FIELD MANEUVERS

One feature in which the Fort Riley Training Camp is probably unique is the field maneuvers which have been carried on during the past two weeks. One company at a time is mounted and taken into the field. A problem for medical officers is then propounded involving a definite military situation with a regiment, brigade or division in a certain position and in contact with the enemy. The number of wounded, the location of aid and dressing stations, field and evacuation hospitals, the disposal of the wounded, the establishment of lines of transportation and communication and the relation of the Medical Corps to the rest of the Army being some of the details worked out. Student officers are assigned to duty for the day as regimental, brigade and division surgeons, directors of ambulances, field and evacuation hospitals, etc. The dressing stations and hospitals are actually established and the ambulances used for bringing in the wounded. For the purpose, enlisted men of the Hospital Corps are distributed over the field, each man being tagged as to his supposed condition, as "Dead," "Gunshot Wound of the Leg," "Stab Wound of Abdomen," etc. The supposedly dead and wounded men are then brought in by litter squads and field ambulances and must be disposed of by the student officers in charge, whose orders and disposition of the wounded is later criticized by the instructors. The country around the training camp is admirably adapted for such maneuvers, which are ideal for training the medical officers in handling real conditions.

PRESS BUREAU APPOINTED

Colonel Bispham has appointed a special board of officers to act as a press bureau for the Medical Officers' Training Camp, consisting of Major C. S. Williamson, Capt. Frederick R. Green and Lieut. Robert A. Allen.

At Fort Benjamin Harrison

The impending departure of most of the National Guardsmen has created a peculiar restlessness in the camp atmosphere. As the majority of the company instructors are drawn from the ranks of these men, their departure will necessitate extensive changes in the teaching personnel. A general exodus began on September 8, and is still in progress. Those of us that are left are for the most part heartily envious, as this journey seems to be one more step in the direction of the battle front.

VISITORS

The camp was honored on Monday, September 3, by a flying visit from the Belgian Mission. As a great number of the medical cadets were absent on furlough over the week-end and holiday (Labor Day), no review was staged in their honor, but some of those left in camp caught a fleeting glimpse of the uniforms as the automobiles sped by.

LECTURES

Two lectures of special interest have been delivered during the week. Of these one was given by Major L. R. Williams, and dealt with the methods of sanitation in use behind the western front. Major Williams was for a time associated with Dr. Hermann Biggs, who was sent over by the Rockefeller Institute, and had an unusual opportunity to study his subject at first hand.

The other lecture was given by Capt. F. H. Harms, on the subject of the more recent condition of German war prisons. Captain Harms was himself detailed to inspect these prisons by the American Red Cross, and was given all sorts of privileges by the German government. The chief point brought out in this most interesting talk was the improvement in prison conditions made effective through the agency of American inspectors. At the time of his inspection, which was subsequent to the prison reforms instituted by the German government, the prisoners were getting 2,600 calories daily, chiefly in the form of soup, and showed no sign of emaciation.

OTHER EVENTS OF INTEREST

During the past week, by special request of Colonel Ashburn, all the companies have been rehearsing the "Battle Hymn of the Republic," so as to be able to sing it in unison at the next parade. The open-air rehearsals have been very impressive, and have developed considerable cantatorial rivalry between the various companies.

Colonel Ashburn is receiving hearty and well-deserved congratulations on his recent promotion.

Capt. Russell M. Wilder, assistant adjutant, is on short leave of absence. His place is being taken temporarily by First Lieut. R. H. Chaney, M. R. C., of Company 7.

The companies which began their training in August are beginning to lose their men to the field hospitals and other units.

One hundred and forty new recruits to the training camp arrived on Monday, September 3; 250 more are now in process of arriving.

Base Hospital No. 32 (Indianapolis) has arrived in camp and is busily training for the hoped for period of foreign service.

An admirable evening's entertainment was provided on September 3 by Lieut. C. J. Lewis, N. G. Pa. (Medical Corps), and a few collaborators, in the shape of a badger fight. The exact details are not allowed to be printed, by order of the committee in charge, but any military man will supply them on request. Suffice it to say that the affair was a striking success, from the social as well as from the sporting standpoints. Further details will be sent on request, on receipt of a stamped addressed envelope.

COMPANY NEWS

There are now ten companies in camp aggregating 1,023 men.

Company 5 gave a theater party in honor of Major McMillan's promotion. They also gave a farewell banquet for their departing officers.

Company 7 gave a banquet and theater party as a send-off for their officers, all of whom are National Guardsmen. Major Gurney has come to live in the company office and will act as instructor after their departure, in addition to his duties as battalion commander.

Physicians Recommended for Commission in the Medical Reserve Corps

During the week ended Sept. 1, 1917, 116 physicians were recommended to the Adjutant-General for commission in the Medical Reserve Corps, the proportion being three majors, twenty-six captains and eighty-seven lieutenants.

During the week ended Sept. 8, 1917, 279 physicians were recommended to the Adjutant-General of the Army for commission in the Medical Reserve Corps, the proportion being eleven majors, twenty captains and 248 lieutenants.

Gift for Medical Research

The War Council of the American Red Cross on August 22 appropriated $100,000 for the medical research work in France.

Homes for Soldiers

The country home of Harry Gordon Selfridge, High Cliff Castle, has been converted into a hospital for convalescent soldiers. Mrs. Percy Proctor has offered to place her villa near Mentone, France, at the disposition of the American Army authorities to be used as a convalescent home. The villa will accommodate forty men.

Goldthwaite Returns

Major Joel E. Goldthwaite, M. R. C., U. S. Army, Boston, who recently returned after a visit to the hospitals in France and England to study the new methods of treating the wounded, reports that 1,000 out of 1,350 wounded soldiers who had been crushed and maimed by shells were so skilfully treated at the London Orthopedic Hospital that they were able to return to duty.

United States Takes Over Ambulance Service

Medical officers left New York for France, August 30, to make physical examinations of the 1,100 Americans in the forty-five sections of the American Ambulance Field Service before the transfer to the regular establishment. It is expected that the army will take over the entire ambulance corps, which will be under the command of Col. Jefferson R. Kean.——The formal transfer of the American Ambulance, Neuilly, to the United States Army took place, July 22, under command of Major George P. Peed, M. C., U. S. Army.

Air Raids on Hospitals

The Germans made an aerial attack on the American Hospital occupied by the St. Louis and Harvard base hospitals, killing one medical officer and two of the enlisted personnel, and wounding nineteen.——Incendiary bombs dropped by German aviators in the regions of Verdun, August 19, killed one female nurse and nineteen male nurses, in Vadelaincourt, Mount Hairon, Dugny and Belrupt hospitals and wounded forty-nine. The hospitals were marked prominently with Red Cross signs.——Austrian aeroplanes bombarded Venice, August 14, and dropped bombs on the civil hospital, wounding several patients.

Advisory Committee on Public Health

A committee having this name has been appointed by the United States Food Administration to act as experts for the Food Administration in problems concerning the relation of nutrition and food supply to the public health. The committee consists of Dr. William H. Welch, chairman, Drs. Leonard P. Ayer, Hermann Biggs, David T. Edsall, A. Walter Hewlett, Theodore T. Janeway, F. G. Novy, Richard M. Pearce, H. Gideon Wells and Admiral Cary T. Grayson, together with Drs. Alonzo E. Taylor and Ray Lyman Wilbur, of the Food Administration as ex-officio members. The men named are all well known to the medical profession.

Advisory Committee on Alimentation.

The United States Food Administration announces the creation of an Advisory Committee on Alimentation consisting of C. L. Alsberg, chief of the Bureau of Chemistry; Prof. Russell H. Chittenden, director of the Sheffield Scientific School; Dr. C. F. Langworthy, head of the office of Home Economics, Department of Agriculture; Graham Lusk, professor of physiology, Cornell University Medical College; Lafayette B. Mendel, professor of physiological chemistry, Yale University, and Dr. E. V. McCollum, formerly of Wisconsin University, now of Johns Hopkins. In addition, Dr. Alonzo E. Taylor, Dr. Ray Lyman Wilbur and Dr. Vernon Kellogg, members of the Food Administration, are ex-officio members. The purpose of the committee on alimentation is to cooperate with experts in the policy of food control from the standpoint of scientific nutrition.

Orders to Officers of the Medical Corps

The following promotions in the Medical Corps are announced: To be colonels, with rank from May 5, 1917—Lieut. Cols. David Baker, Albert E. Truby, James B. Church, Joseph H. Ford, Percy M. Ashburn, Elmer A. Dean, Francis M. C. Usher, Willard F. Truby, Frederick F. Russell and Edwin P. Wolfe.

To be lieutenant colonels, with rank from May 15, 1917—Majors Henry F. Pipes, Charles L. Foster, John R. Bosley, Robert C. Loving, Orville G. Brown, George F. Juenemann, Joseph F. Siler, Arthur M. Whaley, Theodore Lamson.

To be lieutenant colonel, with rank from June 25, 1917—Major C. R. Snyder.

To be majors, with rank from June 16, 1917— Capts. C. L. Gandy, A. W. Williams, L. H. Bauer, W. W. Vaughan, J. B. Anderson, E. P. Thode, W. P. Davenport, H. N. Kerns, R. S. Wilds, A. J. Canning, L. W. Webb, Jr., J. H. H. Scudder, W. C. Von Kessler, J. M. Pratt, C. L. Beaven and W. G. Guthrie.

To be major, with rank from July 19, 1917—Capt. H. B. McIntyre.

Col. Edward R. Schreiner, M. C., to permanent command of U. S. Army General Hospital No. 1, New York, N. Y. (Aug. 24, War D.)

So much of Par. 119, S. O. 188, Aug. 14, 1917, War D., as relates to Lieut. Col. M. A. W. Shockley, M. C., is revoked. (Aug. 23, War D.)

Captains of M. C. to duty as follows: George W. Cook to Fort Riley, Kan.; Leonard S. Hughes to Fort Riley, Kan., training camp; Henry C. Maddux to Fort Des Moines, Iowa. (Aug. 23, War D.)

Capt. T. D. Woodson, M. C., from Canal Zone, to Washington for temporary duty. (Aug. 27, War D.)

Orders to Officers of the Sanitary Corps

First Lieut. Charles W. Williams, San. Corps, to duty at Louisville, Ky. (Aug. 23, War D.)

First Lieut. George C. Van Sickle, San. Corps, to Mineola N. Y., as medical supply officer. (Aug. 23, War D.)

Orders to Contract Surgeons

Contract Surg. Benjamin F. Williams to Fort Des Moines for examining in his specialty men at officers' training camp.

Contract Surg. Eugene J. Leopold from duty at Fort McPherson to Camp Hancock, Augusta, Ga., for examining for tuberculosis.

Orders to Officers of the Medical Reserve Corps

ALABAMA

To Camp Shelby, Hattiesburg, Miss., for duty, Lieut. J. Shahan, Gadsden.

CALIFORNIA

To American Lake, Wash., for duty in the cantonment laboratory, Lieut. K. J. Staniford, Fresno.

To Fort Sill, Okla., for instruction in gas defense, Capts. F. F. Sprague, Los Banos; R. B. Irones, San Diego.

To Linda Vista, Calif., for duty in the cantonment laboratory, Lieut. J. M. Rehfisch, San Francisco.

To Letterman General Hospital, San Francisco, to report to commanding officer for duty, Capt. Frank P. Topping, San Francisco.

To San Francisco for duty, Lieut. D. E. Arnold, Kerman.

To Walter Reed General Hospital, Washington, D. C., for duty, Lieut. C. L. Baker, San Francisco.

To report by telegraph to commanding general Western Dept., for duty, Lieuts. J. L. Miller, Jr., Los Angeles; J. T. Gardner, Santa Margarita.

COLORADO

To Fort Riley, Kan., for duty in the cantonment laboratory, Lieut. O. F. Broman, Greeley.

To Fort Sill, Okla., for instruction in gas defense, Lieut. W. M. Bane, Denver.

CONNECTICUT

To Ayer, Mass., for duty, Lieut. L. U. Gardner, New Haven.

To Greenville, S. C., for duty at base hospital as chief of the surgical service, Capt. J. S. Dye, Waterbury.

GEORGIA

To Atlanta, Ga., for duty in the cantonment laboratory, Capt. H. L. Van Winkle, Atlanta.

To Fort McPherson for equipping and training his command after completion of mobilization of Red Cross Ambulance Co. 20, Lieut. L. P. Daly, Atlanta.

To Petersburg, Va., for duty, Lieut. J. J. Beaton, Waycross.

ILLINOIS

To Berkeley, Calif., for duty, Lieut. G. C. Otrich, Belleville.

To Fort Sill, Okla., for instruction in gas defense, Capt., H. C. Woltman, Jacksonville; Lieuts. C. Barnes, F. H. Harms, Chicago.

To Rockford, Ill., for duty, Capt. W. L. Baum; as roentgenologist Lieut. L. J. Palmer, Chicago.

To Thirty-Fourth Division for duty, Capt. B. C. H. Harvey, Chicago.

INDIANA

To Fort Sill, Okla., for instruction in gas defense, Capt. L. A. Ensminger, Indianapolis; Lieut. O. O. Alexander, Terre Haute.

To Garden City, Long Island, N. Y., for duty, Lieut. E. J. Dubois, Indianapolis.

IOWA

To Ayer, Mass., in connection with venereal diseases, Lieut. H. L. Walker, Cedar Rapids.

To Camp Fremont, Palo Alto, Calif., Capt. Marcus C. Terry, Brighton.

To Des Moines, Ia., for duty with 3d Iowa Infantry, Lieut. C. N. O. Leir, Des Moines.

To Garden City, Long Island, N. Y., for duty, Capt. T. A. Burcham, Des Moines.

KANSAS

So much of Par. 146 S. O. 186, Aug. 11, 1917, War D., as relates to Lieut. Franklin W. Koons, Nickerson, is revoked.

KENTUCKY

To Camp Taylor, Louisville, Ky., for laboratory work, Lieut. M. Flexner, Louisville.

To Fort Ethan Allen, Vt., as drillmaster and instructor for Hospital Corps, Lieut. R. M. Means, Midway.

To Little Rock, Ark., for duty in the cantonment laboratory, Lieut. M. Warren, Science Hill.

To Louisville, Ky., for duty, Lieut. M. S. Veal, Daniel Boone.

LOUISIANA

To Fort Sill, Okla., for instruction in gas defense, Lieut. F. S. Furman, Shreveport.

To Fort St. Philip, La., for duty, Lieut. E. J. Huhner, New Orleans.

To Little Rock, Ark., for duty in the cantonment laboratory, Capt. J. J. Robert, Baton Rouge.

MARYLAND

To Admiral, Md., for duty in the cantonment laboratory, Lieut. J. R. Oliver, Baltimore.

To Camp Meade, Annapolis Jct., Md., for duty, Lieut. P. F. Sappington, Bel Air.

To Montgomery, Ala., for duty at base hospital as chief of the surgical service, Lieut. D. P. Peters, Baltimore.

MASSACHUSETTS

To Admiral, Md., for duty in the cantonment laboratory, Lieut. D. J. MacPherson, Boston.

To Ayer, Mass., for duty, Lieuts. L. H. Spooner, Boston; as roentgenologist, E. L. Davis, Springfield.

To Camp McClellan, Anniston, Ala., Capt. Edgar M. Medlar, Boston.

To Deming, N. M., for duty as chief of medical service, Capt. E. B. Bigelow, Worcester.

To Fort Banks, Mass., for duty, Lieut. W. M. Crandall, Lawrence.

To Fort Sill, Okla., for instruction in gas defense, Capt. F. R. Ilsley, Medford; D. F. Mahoney, Boston; J. M. Birnie, Springfield.

MICHIGAN

To Columbia, S. C., for duty in the cantonment laboratory, Capt. F. W. Baeslack, Detroit.

To Columbus Barracks, O., for duty, Lieut. DeW. C. Adams, Highland Park.

To Fort Sill, Okla., for instruction in gas defense, Capt. H. M. Beebe, Ann Arbor.

To Hampton, Va., for duty, Lieut. D. V. Hargrave, Carson City.

MINNESOTA

To American Lake, Wash., for duty in the cantonment laboratory, Lieut. A. E. Anderson, Minneapolis.

To Fort Sill, Okla., for instruction in gas defense, Capt. C. C. Pratt, Mankato; Lieut. B. V. Bates, Wheaton.

To Fort Snelling, Minn., for duty, Lieut. J. E. Soper, Norwood.

To Minneapolis, University of Minnesota for duty, Capt. F. C. Todd, Minneapolis.

MISSOURI

To Fort Sill, Okla., for instruction in gas defense, Capt. A. A. Gossow, St. Charles.

To Waco, Tex., for duty at base hospital as chief of the surgical service, Capt. J. C. Morfit.

NEBRASKA

To Fort Omaha, Neb., for duty, Lieut. F. W. Scott, Lodgepole.

NEVADA

To report by telegraph to commanding general, Western Dept., for duty, Lieut. J. L. Garner, Manhattan.

NEW HAMPSHIRE

To Fort Ethan Allen, Vt., for duty, Capt. L. C. Stillings, Surry.

To Fort Sill, Okla., for instruction in gas defense, Lieut. J. A. Drew, Rumney.

NEW JERSEY

To Fort Ethan Allen, Vt., as drillmaster and instructor for Hospital Corps, Capt. A. G. Bising, Weehawken.

NEW YORK

To Anniston, Ala., for duty at base hospital as chief of the surgical service, Capt. J. C. A. Gerster, New York City.

To Atlanta, Ga., for duty in the cantonment laboratory, Capt. G. Baehr, New York City.

To Camp McClellan, Anniston, Ala., Lieut. Ralph A. Kinsella, New York City.

To Chillicothe, O., for duty as roentgenologist, Lieut. S. Brown, New York City.

To Fort Benjamin Harrison for duty, Capt. R. Morris, Lincoln.

To Fort Ethan Allen, Vt., for duty, Lieut. H. L. St. John, Rochester.

To Fort Jay, N. Y., for duty, Lieuts. J. I. Meagher, New York City; R. N. Severance, Staten Island.

To Fort Sam Houston, Tex., for duty as roentgenologist, Lieut. D. S. Childs, New York City.

To Fort Sill, Okla., for duty, Capts. F. G. Young, New York City; for instruction in gas defense, J. N. Boyce, Stanfordville.

To Fort Worth, Tex., for duty in the cantonment laboratory, Lieut. C. Boettiger, Long Island City.

To Governors Island, N. Y., for duty, Lieut. D. W. Cairns, New York City.

To Greenville, S. C., for duty as chief of medical service, Lieut. P. Van Ingen, New York City.

To Louisville, Ky., for duty, Lieut. H. Fox, New York City.

To Mineola, Long Island, N. Y., Aviation School for duty, Lieut. G. F. Gracey, New York City.

To Presidio of San Francisco, for duty with Thirteenth Infantry, Lieut. Jesse Ettelson, New York City.

To Spartanburg, S. C., for duty as chief of medical service, Major H. S. Satterlee, New York City.

To Toronto, Canada, School of Military Aeronautics as post surgeon, Lieut. W. W. Laing, Brooklyn.

To Walter Reed Hospital, Washington, for duty, Capt. G. Draper, New York City.

To West Point, N. Y., for duty, Lieut. J. F. Grattan, New York City.

To Wrightstown, N. J., for duty, Major T. W. Hastings; for duty in the cantonment laboratory, Lieut. H. W. Jackson, New York City.

To Yaphank, Long Island, N. Y., for duty, Lieuts. A. Zingher; for duty in the cantonment laboratory, M. McBurney, New York City.

NORTH CAROLINA

To Camp Greene, Charlotte, N. C., for duty, Lieut. W. J. McAnally, High Point.

To Fort Ethan Allen, Vt., as drillmaster and instructor for Hospital Corps, Lieut. J. Thames, Wilmington.

To Fort Worth, Tex., for duty as roentgenologist, Lieut. H. H. Ogburn, Greensboro.

OHIO

To Battle Creek, Mich., for duty in the cantonment laboratory, Capt. D. Marine, Cleveland.

To Columbus, Ohio, for duty, Lieut. C. H. Weintz, Cincinnati.

To Fort Sam Houston, Tex., for duty at base hospital as chief of the surgical service, Major F. E. Bunts, Cleveland.

To Princeton, N. J., for duty, Lieut. M. H. Urner, Cincinnati.

To Youngstown, O., mobilization of Base Hospital No. 31, Major Colin R. Clark, Youngstown.

OKLAHOMA

To Camp Travis, Fort Sam Houston, Tex., for duty, Lieut. C. E. Lee, Oklahoma.

OREGON

To Fort Ethan Allen, Vt., as drillmaster and instructor for Hospital Corps, Lieut. F. Van Doren, Seaside.

To Fort Sill, Okla., for instruction in gas defense, Lieut. D. Grant, Portland.

To report by telegraph to commanding general, Western Dept., Lieut. H. E. Carruth, Yarnhill.

PENNSYLVANIA

To Allentown, Pa., for duty with Base Hospital No. 27, Major T. S. Arbuthnot, Pittsburgh; for duty, Lieut. W. J. Sener, Douglassville.

To Annapolis Junction, Md., for duty, Lieut. J. R. Conover, Philadelphia.

To Augusta, Ga., for duty at base hospital as chief of the surgical service, Capt. W. A. Dearth, Pittsburgh.

To Austin, Tex., for duty, Lieut. G. W. H. Conrad, Philadelphia.

To Camp Gordon, Atlanta, Ga., for duty as roentgenologist, Lieut. W. S. Newcomet, Philadelphia.

To Camp Taylor, Louisville, Ky., for duty, Lieut. H. S. Wilson, Huntingdon.

To Chillicothe, O., for duty in the cantonment laboratory, Capt. F. Proescher, Pittsburgh; for duty, Lieut. H. L. Brush, Conneaut Lake.

To Fort Sill, Okla., for instruction in gas defense, Lieut. A. L. Hicok, Meshoppen.

To Ithaca, N. Y., for duty, Lieut. E. R. Sibley, Elkins Park.

To Macon, Ga., for duty in the cantonment laboratory, Lieut. M. H. Baker, Pittsburgh.

To Montgomery, Ala., for duty as chief of medical service, Major W. Penner, Philadelphia.

To Petersburg, Va., for duty in the cantonment laboratory, Lieuts. G. R. Moffitt, Harrisburg; for duty, E. J. Asnis, West Conshohocken.

To Pittsburgh, Pa., for duty, Lieut. J. L. Burkholder, Mt. Pleasant.

To Rockford, Ill., for duty, Lieut. H. I. Newcomet, Reading.

To Urbana, Ill., for duty, Lieut. W. S. Shimer, Philadelphia.

To Yaphank, Long Island, N. Y., for duty as roentgenologist, Lieut. R. V. Wolfe, Morristown.

SOUTH CAROLINA

To Columbia, S. C., for duty in the cantonment laboratory, Lieut. G. F. Kluch, Cross Hill.

To Hattiesburg, Miss., for duty in the cantonment laboratory, Lieut. T. R. W. Wilson, Greenville.

To Spartanburg, S. C., for duty at base hospital as chief of the surgical service, Capt. C. B. Earle, Greenville.

SOUTH DAKOTA

To Fort Sill, Okla., for instruction in gas defense, Capt. F. E. Ashcroft, Deadwood.

TENNESSEE

To Columbia, S. C., for duty in the cantonment laboratory, Lieut. J. S. Fleming, Memphis.

To Fort Oglethorpe for duty with Hospital Unit P., Lieuts. K. M. Buck and S. E. Frierson, Memphis.

To Fort Thomas, Ky., for duty, Lieut. C. M. Banks, Springfield.

TEXAS

To Camp Custer, Battle Creek, Mich., for duty, Lieut. C. C. Odom, Childress.

To Fort Worth, Tex., for duty in the cantonment laboratory, Capt. J. C. Flynn, Galveston.

To Laredo, Tex., for duty with 37th Infantry, Lieut. Eugene A. Frechet, Frisco.

To report by telegraph to commanding general, Southern Dept., Lieuts. J. F. Stein, Denison; E. H. B. Steele, Deport; H. D. Filmore, Maryneal; M. O. Rea, Pottsville; C. O. Terrell, Ranger.

VERMONT

To report by telegraph to commanding general, Western Dept., for duty, Lieut. F. S. Pratt, Bennington.

VIRGINIA

To Battle Creek, Mich., for duty in the cantonment laboratory, Capt. W. B. Blanton, Richmond.

To Camp Lee, Petersburg, Va., for duty, Lieut. J. C. Dunford, Portsmouth.

To Petersburg, Va., for duty in the cantonment laboratory, Lieut. B. L. Crawford, Richmond.

To Richmond, Va., for duty, Lieut. C. H. Lewis, Richmond.

WASHINGTON

To Fort Riley, Kan., for duty in the cantonment laboratory, Lieut. W. L. McClure, North Yakima.

To Fort Sill, Okla., for instruction in gas defense, Capt. N. D. Pontius, Seattle.

To report by telegraph to commanding general Western Dept., for duty, Lieut. G. W. Phillips, Bridgeport.

WISCONSIN

To Fort Sill, Okla., for duty, Lieut. G. C. Ruhland, Milwaukee.

To Fort Snelling, Minn., for duty, Lieut. G. F. Spencer, Evansville.

To Washington, for duty, Major Nelson Black, Milwaukee.

Medical News

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST; SUCH AS RELATE TO SOCIETY ACTIVITIES, NEW HOSPITALS, EDUCATION, PUBLIC HEALTH, ETC.)

CALIFORNIA

Soldier's Welfare Work.—The California State Board of Health, August 21, established a Military Welfare Bureau for the care and prevention of venereal diseases in and near military camps in California. The central station has already been appointed by Dr. Wilbur A. Sawyer, Sacramento. The governor has appropriated $60,000 for carrying on this work.

ILLINOIS

Addition to Post-Graduate School.—The Post-Graduate School of Chicago has acquired from the Northwestern University a lot 50 by 105 feet, east front, 50 feet south of its present building, for $15,500, to erect an addition to the hospital.

New Commissions.—Dr. B. McPherson Linnell, Chicago, has been commissioned major, M. C., Ill. N. G., and assigned to duty with the Eleventh Infantry.——Dr. Daniel W. Rogers, Chicago, has been commissioned major, M. C., Ill. N. G., and assigned to the Third Artillery.

Correction.—By an error in the points of the compass, THE JOURNAL announced, Aug. 25, 1917, p. 657, that Dr. Charles E. West had been appointed Medical Officer of the Camp Grant District, including the city of Rockford. The name should have been Dr. Clarence W. East.

Addresses Before Graduates.—Dr. Eliot R. Clark, professor of anatomy in the University of Missouri, Columbia, recently delivered an address on "Some Aspects of the Problem of Endothelium," and Dr. Frederick G. Novy, professor of bacteriology in the University of Michigan, Ann Arbor, an address on "Anaphylaxis," before the faculty of students of the graduate summer quarter in medicine of the University of Illinois.

IOWA

State Hospital for Epileptics.—The new State Hospital for Epileptics at Woodward has been completed, and was opened to receive patients, September 3.

Personal.—Capt. Rodney P. Fagen, Des Moines, has been commissioned major, M. C., Iowa N. G., and assigned to the Second Infantry.——Dr. John H. Stalford has resigned as mayor of Sac City.——Dr. William C. Witte has been assigned to take charge of rural sanitation in the extra cantonment zone, Camp Dodge.——Lieut. Charles T. Kemmerer, M. C., U. S. Army, Davenport, has been ordered to Deming, N. M., his special duty being the prophylaxis of communicable diseases.

MARYLAND

Personal.—Dr. Henry H. Hampton, formerly chief resident physician at the Church Home and Infirmary, has taken up his new duties as chief resident physician of the Hebrew Hospital, succeeding Dr. M. B. Levin, who has entered private practice.——Dr. Edgar Fay has been appointed an assistant resident physician at Sydenham Hospital by Health Commissioner Blake.——Dr. Hans Hohn, lately associated with the medical staff of Mercy Hospital, Baltimore, has accepted a post at St. Joseph's Hospital, Lancaster, Pa., and has assumed his duties at that institution.

Appointment to Medical Staff.—Dr. Cary B. Gamble has been appointed on the medical staff at Camp Meade, with the rank of major. Dr. Gamble will be stationed at the camp permanently, and his special duty will be to specialize in the treatment of diseases of the heart and blood vessels. Major Gamble will be assisted by a staff of physicians and some enlisted men. Major Gamble follows to Camp Meade Major Arthur M. Shipley of the University Hospital, who was selected to direct the hospital at the Maryland cantonment; Dr. John M. T. Finney in charge of the Johns Hopkins Base Hospital Unit in France, and Dr. Winford H. Smith, superintendent of the Johns Hopkins, who is on the staff of Surgeon-General Gorgas in Washington.

Health Report for August.—The health department's report shows that 237 babies died from illnesses due to the hot weather in August. Of this number, 207 were under 2 years of age. The summer has been extremely hard on infants, and the mortality among them was largely responsible for the highest August death rate in Baltimore since 1913. A total of 945 persons died during the month, compared with 901 a year ago, 822 in 1915, and 845 in 1914. Forty-two fatal accidents were reported; heart disease took a toll of 126. Other diseases were fatal in the following number of cases: tuberculosis, 107; apoplexy, 58; Bright's disease, 85; pneumonia, 53; cancer, 57; typhoid fever, 10, and epidemic meningitis, 2. There have been just two cases of infantile paralysis in Baltimore this year. Typhoid fever showed a remarkable failing-off. The new cases numbered seventy, as against 175 a year ago. Whooping cough is on the increase, there having been 208 cases last month as compared with 154 in August, 1916. The department reported 1,422 births last month.

Result of Examination of National Guard.—The examination of the Maryland National Guard was completed about September 1. Practically all of this work was done during the month of August. Dr. A. P. Herring was appointed by the War Department as contract surgeon in charge of this work, and was assisted by Dr. J. Percy Wade, superintendent of the Spring Grove State Hospital; Dr. R. P. Winterode, superintendent of the Crownsville State Hospital, and Dr. Lewis H. Gundry, Relay. The total number of men inspected was 5,700. Out of that number, 210 were examined and twenty-eight were recommended for rejection. The Fourth and Fifth Regiments were examined at their respective camps: the Field Hospital and the Coast Artillery were examined at the Richmond Street Armory; Troop A and Batteries A, B and C at the Pikesville Armory; Companies D and H of the First Regiment at Lake Montebello; Company B at Hagerstown; Company A at Frederick, and Company C at Cambridge. The remaining companies of the First Regiment have not been examined. Certificates of disability were made out on regular forms and forwarded through the proper channels, in order that the men might be promptly discharged. Dr. Herring and Dr. Wade have been serving as members of the Medical Board under Form No. 484 A. G. O., and with them the major of each regiment. Maryland is the only state in which such an examination has been possible before the troops left for their cantonments.

MASSACHUSETTS

Personal.—Dr. Elliott Washburn, for four years superintendent of the Rutland Sanatorium, has resigned to accept a position as superintendent of the Municipal Hospital of Kansas City, Mo.——Dr. Charles W. McClure, Boston, has been made physician in charge of the medical service of St. Luke's Hospital, South Bethlehem, Pa.——Dr. Milton H. Foster has been appointed to take charge of the physical examination of aliens at the immigration station, Long Wharf, Boston.

Infantile Paralysis.—More than 800 cases of infantile paralysis reported to the Massachusetts Board of Health during 1916 have been given after-treatment by the Harvard Infantile Paralysis Commission. Clinics were held in Boston, Newburyport, Springfield, Quincy, Lynn, Beverly, Greenfield,

Worcester, Malden, Melrose, Lawrence, North Adams and Lowell. There were 1,917 cases reported to the state department of health during the year, and of this number, 454 patients died; no paralysis resulted in 246 cases, and 303 patients were treated privately. The commission supplied treatment directly to 698 patients, and the field agents visited 142 others.

Guard Appointments and Changes.—Lieut.-Col. William A. Brooks, chief surgeon of the state, announces that the following medical officers have been transferred from the State Guard Unit Hospital, with the rank of major: Drs. Donald V. Baker, Brookline, to the Twelfth Infantry; Edward A. Supple, Boston, to the Fifteenth Infantry; Harold Giddings, Allston, to the Fourteenth Infantry; Garry de N. Hough, New Bedford, to the Seventeenth Infantry; Charles E. Durant, Haverhill, to the Sixteenth Infantry, and Benjamin E. Sibley, Brookline, to the Eleventh Infantry.——Dr. Russell F. Sheldon, Boston, has been transferred from the Unit Hospital to the Fifteenth Infantry.——Dr. John J. Egan, Gloucester, has been commissioned first lieutenant, and assigned to the Fifteenth Infantry.——Drs. Francis H. Slack and Charles L. Overlander, Brookline, have been appointed bacteriologists to the Unit Hospital, with the rank of first lieutenant.——Dr. De Witt G. Wilcox, Boston, has been appointed surgeon to the unit, with the rank of captain.——Dr. Orrin Curtis Blair, Lynn, has been assigned to the Fifteenth Infantry, with the rank of captain.——Dr. Hugh Williams, Boston, has been commissioned major, and assigned to the Thirteenth Infantry. ——Dr. Hardy Phippen, Salem, has been transferred from the Unit Hospital to the Fifteenth Infantry, with the rank of captain.

MICHIGAN

Base Hospital Mobilized.—The Detroit College of Medicine and Surgery Base Hospital No. 36 was mobilized at the state fair grounds, August 24, under the command of Major Burt R. Shurly. Capt. Theodore A. McGraw, Jr., has been officially detailed as adjutant of the unit.

State Trudeau Society Organized.—The Michigan Trudeau Society was recently organized at Ann Arbor for the purpose of fighting tuberculosis: president, Victor C. Vaughan, Jr., Detroit; vice president, Dr. James S. Pritchard, Battle Creek, and secretary, Dr. William De Kleine, Flint.

Inches Held with Unit.—The War Department has refused to accept the resignation of Dr. James W. Inches, health officer of Detroit, from the Detroit College of Medicine and Surgery Base Hospital No. 36, in order to allow him to accept an appointment by the American Red Cross as one of the fifteen commissioned specialists to study conditions abroad.

Society Meetings.—The meeting of the Kalamazoo Academy of Medicine was held in South Haven, August 18, the program being furnished by the Chicago physicians who have their summer homes near there.——The August meeting of the Muskegon-Oceana Counties Medical Society was held in Muskegon, August 17. Asst. Surg. Harold S. Hulbert, U. S. Navy, Great Lakes, Ill., presented a paper on "Military Surgery."

Personal.—Capt. Randall M. Cooley, M. C., Mich. N. G., has been detailed as assistant chief surgeon at Camp McArthur, Waco, Texas.——Dr. Allison H. Edwards has been appointed superintendent of the Grand Rapids Sanatorium. ——Dr. Johnston B. Kennedy, Detroit, fell in Washington Arcade, August 21, fracturing two ribs.——Dr. Nellis B. Foster, Ann Arbor, has started for Serbia with the Red Cross Commission.

Hospital Items.—The new Public Hospital, Hancock, was thrown open, August 27, for the inspection by the copper country physicians. On the following day there was a public reception, and the formal opening of the institution occurred, August 29.——A commission from Menominee, Delta, Dickinson and Iron counties recently visited the tuberculosis sanatoriums in Marquette and Houghton counties in order to familiarize themselves with this practical phase of county service. An effort is being made to secure a county sanatorium for Menominee, Delta and Dickinson counties.

MINNESOTA

New Hospital for Rochester.—The Sisters of St. Francis have completed the arrangements for a medical building to be erected in the rear of St. Mary's Hospital, Rochester.

Insane Patients Transferred.—The transfer of sixty chronic insane patients from various state hospitals to a hospital established in connection with the State Farm for Inebriates, Wilmar, was made August 1. They will occupy two cottages recently erected for their accommodation.

Personal.—Dr. Edward W. Buckley, St. Paul, was elected supreme physician of the Knights of Columbus at its thirty-fifth annual meeting, held in Chicago, August 8.——Major James E. Merrill, M. C., Minn. N. G., has been assigned to duty as sanitary inspector at Camp Cody, Deming, N. M.

Women Physicians Organized.—Seventy-five women physicians of Minnesota have formed an organization known as the Minnesota Medical Women's Association, and have elected the following officers: president, Dr. A. Auten Pine, St. Paul; vice president, Dr. Emma L. S. Aldrich, Belview, and secretary, Dr. Florence M. Ridgway, Minneapolis.

Infantile Paralysis Clinics.—The state board of health is holding clinics in various parts of the state for the examination and treatment of infantile paralysis. Dr. Arthur J. Gillette, St. Paul, is acting in an advisory capacity to the state board, and Dr. Willard P. Greene is supervising the medical part of the clinic.

Sanatorium Notes.—The Southwestern Minnesota Tuberculosis Sanatorium, located on the south shore of Lake Okabena, near Worthington, was formally opened, July 23. The institution has been established and is maintained by the Southwestern Minnesota Tuberculosis Association, which comprises the counties of Nobles, Whitestone, Murray, Jackson, Cottonwood, Lyn and Lincoln. The buildings are of monolithic concrete structure, fireproof, and have cost $100,000. ——The commissioners of Ramsey County have passed an appropriation of $16,630 for the maintenance of a county sanatorium at Lake Owasso.

MISSISSIPPI

Hospital Nearly Completed.—Work on the new King's Daughters Hospital, Greenwood, is rapidly nearing completion. An institution of this kind is much needed in Leflore and the adjoining counties.

Personal.—Dr. Henry Boswell, Booneville, has been placed temporarily in charge of the State Tuberculosis Sanatorium, McGee.——Dr. Joseph W. Hough, Jackson, has purchased for $20,000 two houses on adjoining lots, which he has given to the Young Women's Business Club to be used as homes for working girls.

NEW YORK

Diphtheria on Indian Reservation.—On account of the existence of diphtheria in the Tonawanda Indian Reservation, the state department of health has forbidden the holding of picnics or festivals on the reservation until further notice.

Society Will Take in Training Recruits.—The Queens-Nassau Medical Society has initiated and maintained in the organization a collective department to take care of applicants for enlistment in the armed forces of the United States who have been rejected for minor physical defects.

Director of Children's Home.—The New York Civil Service Commission announces that applications will be received from Sept. 7 to Sept. 21, 1917, for the position of director of the Children's Home Bureau.—Applicants must be citizens of the United States and residents of the state of New York. The compensation will be $4,000 per annum. There is one vacancy. Information may be had from Robert W. Belcher, secretary, Municipal Building, New York.

Few Cases of Infantile Paralysis in State.—During July, 1916, nearly 4,000 cases of poliomyelitis were reported in this state, and almost 6,000 during the month of August. In striking contrast to this, there were this year but forty-one cases reported in the entire state, including New York City. The returns for August show but fourteen additional cases in New York City for the month of August, and thirty cases in the rest of the state. Scrutiny of the cases shows them scattered over the state, with no apparent center of infection.

Personal.—Dr. Edward Durney, Buffalo, has been designated as deputy health commissioner during the absence in war service of Capt. Arthur C. Schaefer.——Dr. James P. Marsh, Troy, has been appointed surgeon in chief of the new Henry W. Putnam Memorial Hospital, which is now approaching completion at Bennington, Vt.——Dr. Hermann M. Biggs, state commissioner of health, has been appointed a member of the public health staff of the conservation division of food administration.——Dr. William E. Youland of the state department of health, Poughkeepsie, has been transferred to take up other health matters, and the dysentery situation has been left in charge of Sanitary Supervisor Marsh.——Dr. Barnett P. Stivelman has been appointed medical superin-

tendent of the Montefiore Home Country Sanatorium at Bedford Hills.——Dr. Irving I. Gellman has been appointed first assistant physician of the house staff in the sanatorium, to succeed Dr. Joseph Rosenblatt.

Civil Service Examination.—The civil service examination will be held throughout the state, October 6, for the following positions:

Muscle Tester, Infantile Paralysis Aftercare, State Department of Health; salary $75 a month and traveling expenses; open to women only between 21 and 45 years of age. Candidates must have had not less than three weeks' instruction of practical work in muscle testing and in the use of the spring balance.

Inspector, State Department of Health; salary $1,260, for men only.

(a) Those qualified in general sanitary and milk inspection.

(b) Those qualified in complete construction of county tuberculosis hospitals.

Assistant superintendent (male), State Custodial Asylum for Feeble-Minded Women, Newark; salary $2,000 a year and maintenance. Candidates must be graduates of local chartered medical colleges, licensed to practice medicine in the state, with training in psychology and other related subjects, and with at least three years' experience in the care of the feebleminded, epileptic or insane.

Medical Assistant, Office of District Attorney, County of Kings; salary, $3,000, open only to male residents of Kings County who have been duly licensed to practice medicine in the state for at least ten years.

Applications for these positions should be obtained from the State Civil Service Commission, Albany. No applications will be received at the offices of the commission after September 26.

New York City

House Given to Red Cross.—Mrs. Nicholas F. Brady, the buyer of the Colony Club, Thirtieth Street and Madison Avenue, which was purchased for $400,000, has turned over the structure to the American Red Cross to be used as administration headquarters for the New York District during the period of the war.

Sale of Absinthe Prohibited.—The department of health has amended the Sanitary Code so that from September 1 it will be a violation of the code to "have, sell, or offer for sale the alcoholic beverage known as absinthe, a manufactured product containing wormwood, or absinthe, an ingredient which may render the beverage injurious to health."

Personal.—Dr. Michael V. Ball has resigned as professor of pathology of the New York Medical College and Hospital for Women, and will resume practice at Warren, Pa.——Dr. Benjamin F. Knause, as a result of a competitive examination, has been given first place on the list from which the health commissioner will appoint an assistant sanitary superintendent for Brooklyn.——Dr. Lewis P. Harris has been appointed director of the Bureau of Preventable Diseases of the health department, to succeed Dr. Bertram Waters who has resigned to resume private practice.

War Hospital Opens Ward.—The War Demonstration Hospital of the Rockefeller Institute for Medical Research has opened a second ward to which patients are admitted who have chronic or obstinate infections, compound fractures, chronic osteomyelitis, and various leg ulcers. This class of patients will be used to demonstrate the efficacy of the Carrel-Dakin method of treating infected wounds.

Contagious Disease Hospital.—Plans have been completed for a hospital for contagious diseases to be erected in the Bronx which will have accommodation for 1,000 patients. It will be a four-story structure, and will occupy the entire block bounded by Schieffelin Place, Seton Avenue, and East Two Hundred and Thiry-Third Street. The building will have glass partitions to separate the wards, and also for the observation rooms where patients will be under surveillance.

Society for Reeducation of War Cripples.—September 3, the National Society for the Promotion of Occupational Therapy met at the land ship *Recruit* and discussed ways and means of fitting cripples for the work they did before the war, or in case this cannot be done, reeducating them for some other vocation. The society has been put on a permanent footing, and offers to investigate every case brought to its notice. W. P. Jackson has been elected president, and Mrs. Winifred Brainerd, chairman of the executive committee.

Typhoid in Borough of Richmond.—An outbreak of typhoid fever is reported from the West Brighton district of Staten Island. Up to September 6, about thirty-five cases had been reported, and forty more were under observation. The course of infection is at present supposed to be the milk of a certain dealer who has been getting his supply from Delaware, N. J. The usual precautions are being taken to prevent the spread of the disease, including a warning sent to about 4,000 of the residents of that section not to eat raw food, and to be careful in the selection of a milk supply.

Draft Evasion.—Dr. Albert R. Fritz, Brooklyn, is reported to have been arrested, August 25, by the Department of Justice, charged with conspiracy to obstruct the selective draft law, and to have been held in $10,000 bail. It is alleged that Dr. Fritz approached a registrant and promised him exemption on the payment of $300.——Dr. Seligman, Brooklyn, assistant examining physician on Local Exemption Board No. 52, Williamsburg, is said to have been arrested, August 21, charged with conspiracy and offering to accept a bribe of $200 to disqualify a drafted man who appeared before him.

Report on Drug Cases.—A report of the chief statistician of the city, made at the request of Chief City Magistrate William McAdoo, shows that during the first six months of 1917 there have been 1,242 drug cases disposed of by the city magistrate. Of this number, 1,104 of the defendants were men, and the remainder women. The cases were separated into four classes: the voluntary commitments, through the magistrate's office, to Warwick Farms, of which there were 108; the drug addicts, over whom the city magistrates have summary jurisdiction, of whom there were 175, 138 male and thirty-seven female; the distributors of drugs charged with misdemeanor under the public health law, of which there were 471, 424 men and forty-seven women, and the dealers charged with misdemeanor. Of the 392 felony charges against dealers in narcotics, 339 defendants were men and fifty-three were women.

OHIO

Northwestern Ohio Physicians to Meet.—The annual meeting of the Northwestern Ohio District Medical Association will be held at Lima, October, 17-18, under the presidency of Dr. James R. Tillotson, Delphos.

Joint Tuberculosis Hospital.—The county commissioners of Lorain, Erie, Sandusky and Huron counties have arranged a meeting to consider the feasibility of constructing a tuberculosis hospital for the four counties, to be located at a central and accessible point.

Health Insurance Board Appointed.—August 23, the governor appointed the following commission to conduct a study of health insurance, sickness prevention and old age insurance: M. D. Hammond, Columbus; D. F. Garland, Dayton; Andrew Warner, Cleveland; T. J. Donnelly, Columbus; M. W. A. Julian, Cincinnati; D. R. Kennery, Youngstown, and O. B. Chapman, Dayton.

Personal.—Dr. Paul A. Murr, Galion, was seriously injured, August 25, by being crushed between an automobile and the wall of a building.——Dr. Ora O. Fordyce, superintendent of the Athens State Hospital, has been granted further leave of absence on account of ill health.——Dr. Herbert M. Platter, Columbus, medical inspector of schools, has been appointed temporary secretary of the State Medical Board, succeeding Dr. George H. Matson, deceased.——Dr. Ralph W. Van Horn, Findlay, saved a man from drowning in Lake Erie at Rye Beach, August 19.——Dr. Martin F. Vereker has been elected a member of the Common Council of Hamilton.

PENNSYLVANIA

Personal.—Dr. William M. Lynch, Clarks Summit, who has been appointed superintendent of the State Hospital for Criminal Insane at Farview, Wayne County, has resigned as senator from Lackawanna County, and has entered on the duties of his new position.——Dr. Ross H. Skillern, Philadelphia, has been appointed major in the U. S. Medical Reserve Corps to take charge of the Nose and Throat Unit at Camp Sheridan, Montgomery, Ala.——Dr. Alfred Gordon, Philadelphia, addressed the York County Medical Society at its annual meeting, September 6, on "Differential Diagnosis and Modern Treatment of the More Common Neurological Conditions Met with in General Practice."

Philadelphia

Hold Red Cross Carnival.—A carnival and bazaar was held by the southeastern section of the American Red Cross, in West Philadelphia, September 7, to raise $1,000 for the Red Cross Fund.

Medical Institutions.—The Union County Society met in annual session, July 19, at Lewisburg, with eight members present. Officers were elected for the ensuing year as follows: president, Dr. Ralph Steans; vice president, Dr. Harry R. Thornton; secretary-treasurer, Dr. Amos V.

Persing, Allenwood; reporter, Dr. William E. Metzger, Alvira; censors, Drs. Thomas C. Thornton and William Leisler, and committee on public policy and legislation, Drs. Charles A. Gundy and William Leiser, Lewisburg, and Paul H. Bigle, Miffinburg.

Negro Association Pledges Aid.—At the opening session of the National Medical Association, an organization of colored physicians, pharmacists and dentists, which met in the southwest branch of the Young Men's Christian Association, August 28, delegates pledged themselves to use their influence with negroes all over the country to induce them to enlist and to loyally support the government in war. A committee consisting of Drs. G. J. Bowen, J. A. Kenny and W. J. Daniels was appointed to visit the Surgeon-General to question him as to the manner in which the members of the association can best aid the government. They will also offer to the government a fully equipped base hospital for service abroad.

Personal.—Dr. Edward E. Montgomery has been elected president of the Philadelphia Branch of the National Wartime Prohibition Committee.——Dr. Frank C. Abbott, who has been in France since the beginning of the war, was specially mentioned for service on the occasion of the distribution of medals at Vendome.——Dr. William H. Morrison was elected president of the Baltimore and Ohio Association of Railway Surgeons, at its meeting in Cleveland, June 22.——September 7, Dr. Wilmer Krusen, director of public health and charities, delivered an address on "Activities of the Municipal Health Department" at the College Settlement. The meeting was attended by nearly 200 persons, including many neighborhood physicians.

UTAH

Personal.—Dr. Andrew J. Bowman, Salt Lake City, has been commissioned first lieutenant, Utah National Guard, and assigned to duty with the Field Hospital Company.——Dr. John S. Gordon, Ogden, who was knocked down by a car in Los Angeles several weeks ago, sustaining a fracture of the hip, is reported to be improving.

Typhoid Fever.—The report of the Salt Lake Board of Health for the week ending August 25 shows that on that date there were thirty-five houses under quarantine in the city on account of typhoid fever. Dr. Theodore B. Beatty, secretary of the state board of health, who has just returned from an inspection trip, states that outside of Salt Lake City there is less typhoid fever in Utah this year than there has been in any corresponding season in twenty-five years.

VIRGINIA

National Quarantine Station.—Craney Island, across the Elizabeth River from Norfolk, Va., has been turned over by the Navy Department to the United States Public Health Service to be used as a National Quarantine Station, and Congress has been asked to appropriate $400,000 for the purpose of erecting the necessary buildings on the island.

GENERAL

Book on Health in War.—The American Museum of Natural History has published a booklet entitled "Health in War," which is intended for distribution at a nominal price as a means of acquainting the soldier, recruit, and also the general public with all the proper precautions against disease and other causes of poor health. The book is being issued in connection with the "Food and Health Show."

Examinations for Appointments in the Children's Bureau.—The previously announced examinations for special agents and research assistants to fill vacancies in the Children's Bureau, Department of Labor, at salaries ranging from $1,200 to $1,680 a year; and examinations for assistant inspectors, Child Labor Division, at the same salaries, which was scheduled to be held September 19 and 20, have been postponed to Sept. 20 and 21, 1917. This is the most recent announcement of the Children's Bureau in regard to these examinations.

Association of Military Dental Surgeons.—The Association of Military Dental Surgeons of the United States, John D. Millikin, president, with headquarters in San Francisco, is making a bid for additional members on account of the increased interest in military dental matters induced by the war. The association now publishes a quarterly bulletin containing dental military news of interest to both the Army and Navy Dental Corps. At present it is contemplated by the military authorities to have at least 1,000 members in the Dental Reserve Corps.

Safety Congress.—The American Museum of Safety held its fourth annual National Safety Congress and Exposition in the Grand Central Palace, New York, during the week of September 9. The entire ground floor of the Grand Central Palace was occupied by appliances for accident prevention, fire prevention, and sanitation. Reports of the organized safety activities last year claim a saving of 5,000 lives through their efforts. Statistics show that 22,000 workingmen were killed in American industrial accidents during the year 1916, and that more than 1,500,000 were injured so that they had to lose time from their work during the year. Of this number, 600,000 were incapacitated for more than four weeks. It is estimated by Arthur H. Young, the director of the American Museum of Safety, that 70 per cent. of all industrial accidents are preventable.

Civil Service Examination.—The United States Civil Service Commission announces that examinations will be held at the time stated for the following positions:

October 2: Scientific Assistant in the Public Health Work (male); salaries, Grade 1, $1,500 to $2,000; Grade 2, $900 to $1,500. Applicants for Grade 1 must have had college or university instruction in medicine, biology or sanitary engineering subsequent to graduation from a four year's high school course, and at least six months' experience in Public Health work under federal or state authorities. Applicants for Grade 2, at least graduation from a four year's high school course and six months' experience of public health work under federal or state authorities; must be between 21 and 35 years of age, of good character and physique.

October 3: Pathologist (male), to fill vacancy in Freedmen's Hospital, Washington, D. C.; salary $2,000 a year. Applicants must have had at least one year's experience in a pathologic laboratory after having graduated from a medical college of recognized standing, and must be able to make all kinds of pathologic examinations and reports thereof; applicants must be citizens of the United States, and must have reached their twentieth birthday.

Physician (male) to fill present and future vacancies in positions of physicians of the Indian and Panama Canal service; acting assistant surgeon of United States Public Health Service; surgeon in the Coast and Geodetic Survey, and other similar positions; salaries in the Indian Service, $1,000 to $1,200 a year; in the Panama Canal service, $1,800 a year; in the Public Health Service, from $480 to $1,800 a year; and in the Coast Geodetic, $1,020 a year and an allowance for subsistence of $1 per diem while serving aboard ship, except in the Philippines, where the allowance is $2.50 per diem. Applicants must be graduates from medical schools of recognized standing or senior students in such institutions, and must furnish proof of actual graduation within six months from date of examination; for Public Health Service at least two years' experience and practice since graduation is required. Applicants must be at least 21 years of age, but eligibles more than 40 years of age will not be certified, except to fill vacancies as acting assistant surgeon in Public Health Service. In the Panama Canal Service applicants must be between 22 and 30 years of age. For the positions in Public Health Service and Coast and Geodetic Survey, the medical certificates in the application form may be executed by officers of the Public Health Service.

Applicants should apply at once for form 1312, stating the title of the examination required, to the Civil Service Commission, Washington, D. C., or the secretary of the local civil service board.

CANADA

Infant Mortality in Ontario.—The number of deaths in children under 5 years of age in Ontario in 1915 was 8,632. The towns show up well in this regard, the same as in tuberculosis. Of the total number, 3,943 occurred in the cities; 4,144 in the rural municipalities, and 545 in towns. The deaths are 133 greater than in 1914.

Cancer in Ontario.—The rate per hundred thousand of the population in deaths from cancer in Ontario is 71.3, the total number of deaths being 1,982 in 1915. This is an increase of sixty-eight, and an increase in the rate in 1914, which was 69.6. The Ontario Board of Health is now conducting a campaign of education with respect to cancer and other diseases.

Births, Marriages and Deaths in Ontario.—The forty-sixth annual report of the vital statistics of the province of Ontario for the year 1915 has recently been issued. The population of the province is estimated to have been in that year 2,767,350. The births registered for the entire province were 67,032, the males being 34,701 and the females 32,331. The illegitimate births were 1,472. The marriages numbered 23,506, as against 24,245 in 1914. The deaths were 33,294, as against 32,440 in 1914. The following diseases give the highest mortality in the province: organic heart disease, 2,835; tuberculosis, 2,466; pneumonia, 2,352; cancer, 1,982; apoplexy, 1,418; diseases of the arteries, 1,242; infantile diarrhea, 1,189; Bright's disease, 1,117; bronchopneumonia, 662; paralysis, without specified cause, 527. As to tuberculosis, the rate per hundred thousand of population for deaths from this disease is eighty-nine,

which is an increase of four over that of the two preceding years. The increase in the number of deaths is 122. In 1914, tuberculosis caused 7.2 per cent., and in 1915, 7.4 per cent. of all deaths. It is interesting to note that the percentage of deaths in rural municipalities is put down at 57.5, while that in cities is 36.2, and in towns 6.3. The ratio per hundred thousand population in cities is eighty-seven; in towns, twelve, and in rural municipalities, eighty-seven.

FOREIGN

Organization of National Radium Institute in Argentina.—Both houses of the Argentine legislature have voted affirmatively on the creation of a radium institute to be in charge of the medical department of the University of Buenos Aires. The state is ordered to obtain for the university up to half a gram of radium, the sum of 120,000 pesos, national money, having been appropriated for the purchase of the radium. The agitation which has resulted in the decree was inaugurated by the Sociedad de Obstetricia y Ginecologia. The institute is to be modeled on a similar institution at Montevideo, which has been issuing promising reports since its foundation a year or so ago.

The Argentine Medical Library.—The Argentine Medical Association has resolved to enter the publishing field to a certain extent so that the best medical works by Argentine writers will get their chance of publication. The series of books thus to be published by the association are to be known as the Biblioteca Medica Argentina. The first book of the series is already in press. It is Dr. E. R. Coni's "Memoirs." As Coni has always taken a leading part in matters connected with hygiene and the public health, his autobiography forms a complete history of hygiene in Argentina. Some of the chapters have been appearing recently in the *Semana Medica* and the *Prensa Medica* of Buenos Aires, but the whole is now to be issued in book form. It seems to be the plan to publish the works in serial form first, in the *Revista de la Asociacion medica Argentina,* the official organ of the association. The first chapter, with illustrations, appears in the *Revista* for July.

PARIS LETTER

PARIS, Aug. 16, 1917.

Homage Shown by the American Committee on Study in France

Mr. Sharp, ambassador of the United States, recently called on M. Steeg, minister of public instruction, to pay his respects in the name of the American Committee on Study in France, and to present to him a copy of the volume entitled "Science and Instruction in France." This book, in the preparation of which numerous professors and scholars of the United States have collaborated, presents a complete and remarkable survey of the scientific development in France during the past hundred years, and enumerates the resources of every nature that our country offers at the present time to the active investigator and to students.

M. Steeg thanked Mr. Sharp warmly for the step that had been taken, and requested him to convey his cordial congratulations to the authors of the work.

The War

TREATMENT OF PURULENT PLEURISY BY PROLONGED ASPIRATION

At a recent meeting of the Académie de médecine, Dr. J. S. Dauriac explained the method of prolonged aspiration that he uses in the treatment of purulent pleurisy, which is a frequent sequela of chest wounds. All his patients made a rapid recovery, in two weeks, on an average, and the history of their illness was remarkably simple. The technic employed is as follows: A rubber tube 1.5 meters long is introduced into the pleura and pushed down to the bottom of the pleural cavity. The edges of the wound are drawn close around the tube, or the orifice around the tube is padded with small compresses. The empyema is relieved and the necessary costal resections made. The pleura is irrigated with neutral solution of chlorinated soda and the false membranes are removed. The distal end of the tube passes through the dressings, is attached to the lateral branch of a glass tube bent in the shape of a hunter's horn, and functions as a water tube. A reservoir of water is installed 1.5 meters above the level of the bed, and a tube from this reservoir connects with the horn-shaped tube, through which the contents of the reservoir flow in drops into a receptacle placed at the foot of the bed. The falling of the water through the trumpet-shaped tube produces a constant vacuum in the lateral branch that is buried in the pleural cavity. The water dropping constantly produces also a constant vacuum in the pleura. When for any cause the tube ceases to perform its function, the patient is immediately aware of it. The feeling of comfort and easy respiration that he had before is succeeded by a feeling of discomfort and oppression. This uncomfortable feeling is due to the fact that the lung ceases to reach the limits of the pleura by the aid of the prolonged aspiration. This procedure shortens markedly the duration of the pleural suppurations, which often threaten to continue indefinitely, owing to the fistulas which develop. Two weeks suffice to put an end to the discharge. The dressings are never soiled and there is no odor whatever. Moreover, the patients, who are always cachectic in purulent pleurisy and remain so for a long time, rapidly assume the appearance of good health.

THE MEDICAL SERVICE AT THE BATTLE OF FLANDERS

In order that, during the offensive of July 31, the soldiers of the Anthoine army might be cared for, restored to health and evacuated as rapidly as possible, three sorting stations had been provided near the firing line. At these stations the first-aid dressings were opened by qualified surgeons, who gave to each patient, according to the nature and gravity of his wounds, a card designating a definite surgical center to which he should be removed. Thanks to the explicitness of the instructions given to the hospital ambulances that were to take the men to these centers, few errors were made, and none that were made entailed serious consequences. An innovation that was introduced in the case of the transportable wounded was an intermediate unit between the sorting stations and the evacuation hospitals. In the intermediate hospital center the available surgical resources were such that it was possible to operate on all the wounded without exception before directing them to the evacuation hospitals charged with their further transportation. Thus were avoided the dangers of infection and of gas gangrene, the untoward results of which were so deplorable at the beginning of the war. These precautions were all the more necessary because on the banks of the Yser our soldiers had to fight in a veritable mire.

THE SANITARY CONDITION OF THE AMERICAN TROOPS IN FRANCE

The report of the Medical Corps of the American Army indicates that all the American troops in the French camps are in excellent health. The only diseases confirmed are measles and mumps. All the troops are vaccinated against typhoid fever and smallpox. The Medical Corps is hastening the installation of a hospital at the port of landing. Red Cross stations have been established all along the line between the port and the entraining camps.

A PHYSICIAN THE VICTIM OF HIS DEVOTION

The *Journal Officiel* has just published a decree appointing to the rank of knight of the Legion of Honor Dr. Henri Blanc, formerly a hospital intern, to which the following comment is attached: "Exceptional claims: A distinguished surgeon. Although relieved of all military obligations, he has given, since the beginning of the war, unsparingly of his time and energy in the treatment of the wounded. During the course of a surgical operation he suffered a slight puncture of the skin which brought on a grave septicemia endangering his life."

TREATMENT OF PALUDISM OF THE SALONIKI TYPE

At the last meeting of the Académie de médecine, Dr. Marchoux of the Pasteur Institute presented an interesting communication on this subject. According to the reports of certain authors, it seems that the Saloniki type of paludism differs from the type commonly known, and that it resists treatment by quinin administered in classic doses. In order to get a clear conception of the nature of the parasites of which so many soldiers returning from the Orient are carriers, Dr. Marchoux followed the course of the disease as displayed by the patients in the Pasteur Hospital. The blood of the patients whom he inspected was subjected to daily microscopic examinations. The thick-film method by which a drop of blood is dehemoglobinized, as recommended by Ross and perfected by Tribondeau, has been found particularly useful. After staining by the Romanowsky method, the examination of thirty fields is sufficient to give a high degree of diagnostic precision. All the patients except one (who was suffering from quartan fever) had been hospitalized for benign tertian fever. After they had been rid of the parasites of the type *Plasmodium vivax,* five of them remained

carriers of gametes of *Plasmodium falciparum*. The Saloniki type of paludism is therefore produced by Laveran's three types of hematozoon. Quinin treatment remains as usual sovereign. When administered by the digestive tract in 1 gm. doses, quinin alkaloid insures the rapid disappearance of the schizonts. It seems that an exaggerated importance has been attached to subcutaneous and intravenous injections. Too rapid elimination of the drug is an objection. This objection applies strongly to the use of easily soluble salts, and even more so to the introduction of solutions under the skin, or especially into the blood stream. The superiority of cinchona to quinin was formerly proclaimed by Trousseau. The reason for his choice may doubtless be sought in the slow absorption of the alkaloids. From the researches of Marchoux it develops that quinin sulphate acts better than the more soluble salts, and that basic quinin is preferable to the sulphate. The sulphate contains 72 per cent. of quinin, the hydrate contains 85 per cent. The hypodermic and intravenous injections are not always without danger and should be reserved exclusively for the treatment of pernicious attacks which require energetic interference. In the treatment of chronic malarial fever the remedy should be administered by mouth and in a form as slightly soluble as possible. Basic quinin just fits the requirement. Quinin does not stop an attack once it has set in. When the schizonts bordering on maturity undergo division, a dose of 1 gm. of quinin absorbed *en masse* may ward off the fever. When the schizonts are younger, it is better, in order not to incite auricular trouble, to administer four 25 gm. wafers in twelve hours. The parasites break up and disappear in twenty-four hours without causing an attack.

Quinin has some effect on the gametes of *Plasmodium vivax* and *Plasmodium malariae*, but it does not reach them all, some being always left; those that are still growing seem to be able to resist successfully the action of the quinin. Even though the hematozoon resists quinin treatment, it should not be regarded as a cyst or a spore. It is not in a state of repose, but in a condition of activity. At the end of an average period of two weeks, it undergoes division (like an asexual plasmodium) by a sort of parthenogenesis. The radial striation thus formed serves as the point of origin for new generations of schizonts and gametes. The result of this evolution is that a cured attack is followed by a recurrence two weeks later. If the asexual generation is only slightly abundant, the attack is not forthcoming and the period of apyrexia lasts a month. When the patient is the host of several distinct generations of parasites, weekly, or even more frequent, attacks are induced. The rational treatment consists in destroying the schizonts as fast as they are produced, until the gametes are exterminated. It is impossible to accomplish clinically the sterilization of patients, because the infection does not manifest itself until an attack appears, and then it is too late to intervene. The microscope, however, reveals the parasites two or three days before the onset of the fever, and makes it possible to destroy them as soon as their presence is discovered. By this procedure it would seem possible to sterilize a patient by the mere use of a few grams of quinin. In order to attain this end, it would be well to assemble all malaria patients in a rural hospital in which they could be protected against mosquitoes of the genus *Anopheles* and their blood could be examined daily. All those for whom the test proved negative would work in the fields; the others would be given quinin and would be kept quiet. Until such an arrangement can be made, one can preserve in a state of convalescence such malaria patients as feel able to work by obliging them to present themselves twice a week at a dispensary provided with laboratory facilities.

The empiric procedure, which consists in giving quinin every day, offers a high degree of safety, but it is open to the objection that it entails a heavy waste of a valuable drug and also produces at times untoward symptoms, of a mild nature, to be sure, but such as to have their effect on the patient. Since from two to three days, at least, are required for the parasites to multiply sufficiently to incite any fever, it is practical therapy to give 3 gm. of quinin each week, in order to reach all the different generations that are successively produced. If the suppression of four generations can be successfully accomplished, this would appear to be sufficient to sterilize the system, in any event to such an extent as to permit the patient to triumph over any remaining elements. Quinin does not prevent parthenogenesis from taking place. If administered in too small quantities it does not hinder the development of parasites. One gm. in twenty-four hours is the required dose, which will, however, be sufficient only on condition that it is actually absorbed. Judging from the relative frequency of infections with *Plasmodium falciparum* in the Orient and infections with *Plasmodium vivax* in France, it is not possible to conclude that these two types of malaria parasites are identical. Many patients are infected with both parasites. The infections with *Plasmodium falciparum* are more rare in France than in the Orient because, for reasons as yet unexplained, patients suffering from malignant tertian seem to recover spontaneously in the climate peculiar to France.

LONDON LETTER

LONDON, Aug. 26, 1917.

Bonesetters and Parliament

For half a century at least there has flourished in London some "bonesetter" with a reputation of succeeding where the best surgeons of the day have failed. The man who now holds that position is a Mr. Barker, who enjoys the patronage of some of the most eminent persons. Such is his reputation that the members of Parliament have made it a grievance that the government does not seek his aid for the treatment of disabled soldiers whom, by the way, he has offered to treat gratuitously. One member alleged that nearly all the great discoveries of medicine had come from outside the medical profession and had nearly all been regarded in exactly the same way as "manipulative surgery" (the term by which the bonesetter dignifies his occupation) is now regarded by the orthodox members of the medical profession. "For example, ether was first used by unqualified men. Pasteur was refused a hearing because he had no degree, and Lister was scoffed at when he suggested the employment of antiseptics." This member also pointed out that Mr. Hodge, the present minister of labor, sprained his knee and was told by his physician that by usual methods of treatment the process of cure would be slow, and advised him to go to Mr. Barker, to whom he was carried in a motor car. After his treatment he was able to walk home.

Sir Watson Cheyne, who was recently elected as member for Edinburgh and St. Andrew's Universities, in a maiden speech said the difficulty was that if something were given to one particular bonesetter many other bonesetters would want it given to them also. He did not dispute the excellence of Mr. Barker's work, but if he were accepted, the Army Medical Service would be flooded with irregular practitioners who were absolutely incompetent. If bonesetters were admitted, where was the thing to stop? Were they to refuse faith healers, who gave wonderful accounts of their work? Then there were cancer curers and herbalists and all sorts of unqualified persons who had asked to come in. His own experience of bonesetters, as a rule, was that they were not educated for their job. They were usually brought up in places where a considerable number of accidents occurred, and had acquired a reputation for facility in dealing with them. He did not say that there were not some men who, having become bonesetters, had set to work to try to learn something about bones and joints; but the average bonesetter did not. The bonesetter had only one diagnosis—dislocation—and only one method of treatment, and that was to wrench and twist the limb. The human frame was a very delicate organization. It should not be meddled with by people who did not know it as intimately as it was possible to know it after years of study. In spite of want of knowledge on the part of the great majority of bonesetters, they did often produce marvelous cures, and it was a great puzzle for a long time how these were brought about. They themselves spoke of a dislocation which they reduced, but it was quite clear that in many cases this was not so. They tore through adhesions which had formed. Developments of that kind occurred often in former days, but now the surgeon was on the alert in the case of all injuries against such developments. There were certain dangers in connection with these cases: it might happen as the result of a sprain or slight injury of the joint that disease was set up in the adhesions—for instance, a patient with a tendency to tuberculosis might get a tuberculous cyst in connection with the injured joint; probably such a joint would get well with careful attention; but if a bonesetter broke it down with violence, it might set the disease to spreading with rapidity and utterly spoil the joint. He had seen many such cases, and more than once had had to amputate. A still more tragic thing was that a tumor sometimes developed in the bone, and he had known cases in which the bonesetter, still thinking it was a case of dislocation, had violently broken up the part, and the disease, which was local, had then spread throughout the whole body. Turning then to cases of dislocation of the cartilage, he said that

it might be due not only to injury but also to three or four other causes. When it was really a case of dislocation of a cartilage, manipulation might give great success; it was necessary, however, to exercise great care in diagnosis. In soldiers it was not usually a case of loose cartilage, but terrible fractures and terrible breaking up of the joint. He had not heard that bonesetters claimed any skill in treating wounds; the treatment of wounds was the whole science of the business of the surgeon among soldiers. Sepsis getting into wounds was the trouble, and to avoid sepsis was a difficult problem not yet fully solved. Was the bonesetter to be allowed to put his dirty fingers into a wound?

Mr. Macpherson, undersecretary for war, replying for the government, pointed out that, unlike civilians, soldiers could not choose their own physician. The state required that every physician must have passed a recognized test and could not, therefore, ask a soldier to undergo treatment by an unqualified man. The soldier could do so on his own responsibility and if he died, or was maimed for life, the state could not be responsible. If the Army Council said that a duly qualified physician could send a soldier to an unqualified man and he refused to obey that order, the Army Council would dismiss him from the service. If, on the other hand, he did send the soldier to an unqualified man, he would be disobeying the General Medical Council. Vote of credit, by way of amendment to which the subject was raised, was then passed; that is, the subject was dropped.

The Welfare of the Blind

A committee appointed by the government to consider the condition of the blind and the means available for their industrial or professional training has just made a report. It has come to the conclusion that the condition of the blind calls for the more active intervention of the state to secure (*a*) central control, organization and assistance for the existing agencies of voluntary help, which could be utilized with far greater effect if centrally directed; and (*b*) additional assistance for the blind. It is recommended that a special department, whose function shall be the general care and supervision of the blind, shall be set up in the ministry of health, whenever such a ministry is created, and that in the meantime it shall be set up in the Local Government Board. This central authority should make grants, capital and annual, for the purposes indicated in the recommendations. The initial capital expenditure considered most essential is that for increasing the workshop accommodation. Three thousand additional places are urgently required, and the estimated cost per place varies from $500 to $875. An outside estimate of the capital sum required would be $2,500,000. The annual expenditure is estimated at approximately $1,250,000.

CAUSES OF BLINDNESS

The following uniform definition of blindness is recommended: "Blindness means too blind to perform work for which eyesight is essential." The absence of a generally accepted definition militates against persons being marked out for special treatment by the state and being eligible for the benefits of various organizations for the blind. Further, the want of such a definition seriously hampers the collection of exhaustive and uniform statistics. In regard to the causes of blindness, ophthalmia neonatorum is declared to be responsible for over 10 per cent. of the cases. The committee recommends that steps should be taken to assure uniform and more effectual notification of the disease, and that the immediate treatment of all patients should be secured. It is also recommended that the provision and wearing of goggles in dangerous occupations should be made more widely obligatory, as the proportion of blindness caused by accident could be thereby reduced. The provision for the elementary education is regarded as generally satisfactory. The following recommendations are made: 1. The attention of elementary education authorities should be drawn to the necessity of seeing that all possible steps are taken to discover the aptitudes of blind pupils. 2. Residential institutions are preferable to day centers for the majority of young children. 3. The employment of blind teachers whenever practicable should be encouraged, and the salaries of blind teachers should be on an equality with those of teachers with normal eyesight. 4. The committee has no doubt that the education departments will give their closest attention to the need for Braille books, which the National Institute for the Blind is endeavoring to meet. 5. The education authorities should take steps to increase the number of schools or classes for the separate treatment of myopic and partially sighted children. 6. A uniform scheme of after-care should be initiated in the elementary educational system, and a detailed register should be made of all the children in the elementary schools, and by means of paid visitors, the elementary education authorities should keep in touch with the children leaving elementary schools till they are transferred to a secondary education authority or some recognized organization for the blind. The government should consider the desirability of increasing the facilities for the higher education and professional training of blind persons, and of extending the grants payable in respect of pupils undergoing professional training; and the central authority should endeavor to secure financial assistance for persons embarking on professional careers. Pianoforte playing, tuning and repairing, typewriting, massage, teaching, the ministry, the law and commerce are mentioned among occupations for the blind. The financial position of the Royal Normal College, which is mainly dependent on charitable funds, has a serious deficit. The accommodation for industrial training does not appear to be materially deficient, but the problem is the inadequacy of workshop accommodation.

BLIND SAILORS AND SOLDIERS

In the matter of pensions, the committee recommends that further grants should be placed at the disposal of the central authority. Soldiers and sailors blinded in the war are very adequately provided for at St. Dunstan's Hostel (a hostel for soldiers blinded in the war described in previous letter). The largest number of men learn cobbling. They learn in six or seven months to sole and heel a pair of boots, and those who have acquired this industry are making good earnings. The cobblers are also taught mat making. Constant employment is thus secured. Basket making, joinery, poultry keeping, shorthand writing and massage are also taught. The men have been uniformly successful in passing the examinations of the Incorporated Society of Trained Masseurs, the most severe in England. In every possible case a man is returned to his original occupation. In conclusion, the committee refers to the extremely hopeful nature of this problem, and is convinced that if its recommendations are adopted the proportion of the blind to the population will gradually and permanently be reduced. It hopes that each decade will see a diminution in the number of those who are blind from birth and those who are blind from accident.

Marriages

LIEUT. ROY CLARK GUTCH, M. R. C., U. S. Army, Chariton, Iowa, to Miss Ruth Chase of Indianapolis, at Des Moines, August 15.

ASST. SURG. JOEL JESSE WHITE, U. S. Navy, to Miss Ina Virginia Armistead, both of Nashville, Tenn., August 22.

ALPHEUS MCKIBBEN, M.D., Pittsburgh, to Miss Constance Margaret Hartgering of Rapid City, S. D., August 22.

JOSEPH ELLIS SKAGGS, M.D., Leavenworth, Kan., to Miss Margaret Marshall Cole of St. Louis, August 25.

WARREN ERNEST TUPPER, M.D., Cameron, Idaho, to Miss Ada Taylor of Forest Grove, Ore., August 22.

JACOB HENRY TERLINDEN, M.D., Bonduel, Wis., to Miss Alydia Hoge of Jackson, Wis., August 22.

ROSCOE EDMUNDS STEPFIELD, M.D., Cleveland, to Miss Elizabeth Sufall of Sommerset, Pa., August 21.

GUSTAV BAAR, M.D., Portland, Ore., to Miss Vera Rosenblatt of San Francisco, August 24.

HUBERT FRANKLIN MEACHAN, M.D., Oak Park, Ill., to Miss Genevieve Mason of Chicago, recently.

HARRISON M. WELLMAN, M.D., to Miss Freda G. Keller, both of St. Petersburg, Pa., recently.

ALBERT J. BOWER, M.D., Greenville, Mich., to Miss Carlotta Selleck of Flinto, Mich., August 16.

LIEUT. PHILIP M. BEDESSEM, M. C., Ill. N. G., to Miss Marie Foley, both of Chicago, August 4.

EDWARD J. PURTELL, M.D., to Miss Antonette Krubsack, both of Milwaukee, Wis., July 8.

LYMAN ALDEN COPPS, M.D., to Miss Stella Bernice Murat, both of Madison, Wis., July 16.

HANS NACHTIGALL, M.D., to Miss Annamarie von Frantzius, both of Chicago, August 20.

Deaths

Elizabeth A. Follansbee, M.D., Los Angeles, Calif.; Women's Medical College of Pennsylvania, Philadelphia, 1877; aged 77; formerly a Fellow of the American Medical Association; a member of the Medical Society of the State of California; for twenty-five years professor, and thereafter emeritus professor, of diseases of children in the University of Southern California, Los Angeles; said to have been the first woman to practice medicine in southern California; one of the founders of the Hospital for Children, and Training School for Nurses, in San Francisco; died in the psychopathic ward of the Los Angeles County Hospital, August 22.

William Thomas Fitzsimmons, 1st Lieut., M. R. C., U. S. Army, Kansas City, Mo.; University of Kansas, Lawrence and Kansas City, 1912; aged 28; adjutant of the Harvard University Base Hospital Unit, on duty in France; was killed by the explosion of a bomb dropped from a German aeroplane, September 8. It is reported that when the German aeroplanes were sighted Dr. Fitzsimmons came to the door of his tent just as two bombs fell, exploding within 6 feet of him. This is the first death of an American medical officer from wounds since the declaration of war with Germany.

Wyllys Seaman Walkley, Act. Asst. Surg., U. S. P. H. S., Grand Haven, Mich.; University of Michigan, Ann Arbor, 1879; aged 71; formerly a member of the Michigan State Medical Society, and president of the Ottawa County Medical Society; a member of the Association of Military Surgeons of the United States; a veteran of the Civil War; for many years surgeon in charge of the U. S. Marine Hospital at Grand Haven; died at his home, August 29, from heart disease.

Almon Darwin Blakely, M.D., Syracuse, N. Y.; New York University, New York, 1880; aged 69; formerly a member of the Medical Society of the State of New York, and once president of the Otsego County Medical Society; health physician of Milford, visiting physician to the Cooperstown Hospital, and president of the board of education of Milford; died at his home, August 24, from the effects of a fall several weeks before in which he sustained a fracture of the hip.

Herschel D. Hinckley, M.D., Oxford, Ohio; Medical College of Ohio, Cincinnati, 1867; aged 70; formerly a member of the Ohio State Medical Association; for many years a practitioner of Cincinnati; surgeon in St. Mary's Hospital; professor of surgery and dean of the faculty of the Cincinnati Polyclinic and Post-Graduate School, and professor of surgery in the Cincinnati College of Medicine and Surgery; died at his home August 29 from cerebral hemorrhage.

Philip Kittredge Taylor, M.D., New York; University of Pennsylvania, Philadelphia, 1882; aged 57; a Fellow of the American Medical Association; for eight years surgeon of the Ward Steamship Line, and surgeon of the steamship *Monterey;* was taken ill with nephritis on the steamer, and on her arrival in Brooklyn, August 21, was removed to the Brooklyn Hospital, where he died the same night.

John Adams Colliver, M.D., Los Angeles, Calif.; University of California, San Francisco, 1899; aged 45; a fellow of the American Medical Association; instructor in pediatrics in his alma mater; a well known specialist in diseases of children; died in the Angelus Hospital, Los Angeles, August 22, from pneumonia following a surgical operation.

Green Robbins Hulsizer, M.D., Philadelphia; Jefferson Medical College, 1887; aged 55; formerly a Fellow of the American Medical Association; a member of the Medical Society of the State of Pennsylvania; Commander of the Philadelphia Medical Emergency Corps; died at his summer home, in Delanco, N. J., August 31.

John Herbert Ewing, M.D., Delmont, Pa.; College of Physicians and Surgeons, Baltimore, 1897; aged 44; formerly a Fellow of the American Medical Association; a member of the Medical Society of the State of Pennsylvania; president of the Delmont Board of Health, died at his home, August 27, from cerebral hemorrhage.

Andrew Stewart, M.D., Chicago; McGill University, Montreal, 1883; L.R.C.P. (Lond.), 1884; aged 57; a Fellow of the American Medical Association, and for several years a member of the faculty of the College of Physicians and Surgeons, Chicago; died at his old home in Howick, Que., about September 8.

Skidmore Hendrickson, M.D., Brooklyn, N. Y., New York University, New York, 1866; aged 76; a Fellow of the American Medical Association; for one term president of the Queens County Medical Society; acting assistant surgeon U. S. Army during the Civil War; died at Monsey, N. Y., August 30.

Charles Hooks Harris, M.D., Cedartown, Ga., New York University, New York, 1857; aged 83; for half a century a practitioner of Cedartown; surgeon in the Confederate service during the Civil War; died at the home of his son, in Cave Spring, Ga., August 18, from senile debility.

Oliver Morton Davis, M.D., Marion, Ind.; Medical College of Indiana, Indianapolis, 1894; aged 47; a member of the Indiana State Medical Association, and a member of the Marion Health Committee of Public Instruction; died in his apartment, August 26.

William S. Gillam, M.D., South Manchester, Conn.; University of Pennsylvania, Philadelphia, 1888; aged 58; a Fellow of the American Medical Association; surgeon of the First Infantry, Conn. N. G.; died in Hartford, Conn., July 21, from cerebral hemorrhage.

Charles James Paton, M.D., San Francisco; University of California, San Francisco, 1883; surgeon for many years in the service of the Pacific Mail Steamship Company, and surgeon of the steamer *Peru;* is reported to have died at sea, about August 22.

Frederick F. Laws, M.D., Minneapolis; Northwestern University Medical School, Chicago, 1874; aged 68; one of the founders of the Norwegian Lutheran Deaconess Hospital, Minneapolis; died in that institution, August 26, from cerebral hemorrhage.

Levi Springer Gaddis, M.D., Uniontown, Pa.; Jefferson Medical College, 1873; aged 67; a Fellow of the American Medical Association; secretary of the board of trustees of the Uniontown Hospital; died in his apartment, August 31.

John Edgar Brock, M.D., Arkansas City, Kan.; Rush Medical College, 1890; aged 56; a Fellow of the American Medical Association; died at his home, August 19, from nephritis.

Joseph King Turner Van Pelt, M.D., Chelsea, N. J.; Jefferson Medical College, 1864; aged 85; for more that fifty years a practitioner of Philadelphia; died at his home, August 20.

E. A. Chance, M.D., Garfield, Ga.; University of Georgia, Augusta, 1892; a member of the Medical Association of Georgia; also a pharmacist; died at his home, August 13.

Oliver Graham Burgess, M.D., North Yakima, Wash.; Harvard Medical School, 1885; for several years deputy health officer of Yakima County; died at his home, August 19.

L. V. Conwell, M.D., Van Buren, Ind.; Indiana Medical College, Indianapolis, 1878; aged 63; died in the Marion (Ind.) Hospital, July 8, after an operation for hernia.

Robert C. Andrews, Floydada, Texas (license, Texas, Act of 1907); aged 84; formerly a member of the State Medical Association of Texas; died at his home, August 13.

Fay Austin Allen, M.D., Roswell, N. M.; University of Louisville, Ky., 1909; aged 38; died in a sanatorium at Albuquerque, N. M., August 17, from tuberculosis.

Jacob B. Heller, M.D., Easton, Pa.; University of Pennsylvania, Philadelphia, 1878; aged 64; died in the Easton Hospital, August 19, from septicemia.

Edward Watson Updegraff, M.D., Keyport, N. J.; Tulane University, New Orleans, 1897; aged 40; died at his home, August 2, from heart disease.

Jacob Salamon, M.D., Brooklyn; Long Island College Hospital, Brooklyn, 1917; aged 25; was drowned while bathing at Coney Island, August 19.

Leopold Johan Schaub, M.D., Columbus, Ohio; University of Marburg, Germany, 1860; aged 83; died in Grant Hospital, Columbus, August 22.

Raymond Leonard Feser, M.D., Chicago; Loyola University, Chicago, 1915; aged 25; died at his home, August 25, from pneumonia.

James Edward Smith, M.D., Shenandoah, Pa.; Maryland Medical College, Baltimore, 1907; aged 35; died at his home, August 22.

Robert McGurk, M.D., Standish, Mich.; University of Michigan, Ann Arbor, 1878; died in St. Petersburg, Fla., recently.

Thomas A. Allen, M.D., Berlin, Tenn.; University of Nashville, Tenn., 1860; aged 79; died at his home, August 14.

J. T. Wharton, Ceredo, W. Va. (license, West Virginia, 1883); died at his home, August 15.

The Propaganda for Reform

IN THIS DEPARTMENT APPEAR REPORTS OF THE COUNCIL ON PHARMACY AND CHEMISTRY AND OF THE ASSOCIATION LABORATORY, TOGETHER WITH OTHER MATTER TENDING TO AID INTELLIGENT PRESCRIBING AND TO OPPOSE MEDICAL FRAUD ON THE PUBLIC AND ON THE PROFESSION

A FAKE NEOSALVARSAN FACTORY

A Medical Diploma Mill as a Side Line

"Dr." Nicholas Clements is under indictment in New York City for manufacturing and marketing imitation Neosalvarsan, and operating a fake medical-diploma factory; he is charged with grand larceny, forgery and conspiracy. The Department of Health of the City of New York is responsible for unearthing this swindle. An inspector of the department's Bureau of Food and Drugs came across a suspicious lot of Neosalvarsan some time ago and, on June 20, succeeded in obtaining 10 tubes of what purported to be Neosalvarsan but which proved to be nothing but a little common salt colored yellow. A second lot of the fake product was obtained some time later from a Third Avenue druggist.

Fake Neosalvarsan seized by the inspectors of the New York City Department of Health showing three different makes of spurious products. The large box at the top (*A*), representing the cleverest of the three imitations, and was purchased by a wholesale export house for $1,800; it is not worth a cent. At the left are seen (*B*) empty ampoules, (*C*) labels, inserts, etc.; also a tin of aluminum paint (*D*) for painting the *tin* containers used in the lot shown in the middle of the picture (*E*). In the two other imitations aluminum containers were used. Notice the steel die (*F*) used by the counterfeiters to emboss the emblem on the cover of the middle containers.

Visiting physicians at the recent session of the American Medical Association held in New York will remember the specimens of imitation Neosalvarsan that the Department of Health of the City of New York displayed in the exhibit hall. This brand was made, it seems by one Arthur Tomassell who was arrested last week by the New York police charged with grand larceny and held in $5,000 bail. How extensive a business this has been may be gauged from the fact that Tomassell had ordered 50,000 aluminum containers made in imitation of those in which the genuine Neosalvarsan is supplied.

The arrest of Clements for the more recent sale of fake Neosalvarsan was due to the persistent detective work of Inspector Cohen under the direction of Mr. Lucius P. Brown of the Bureau of Food and Drugs. Mr. Cohn traced the supply to 2323 Belmont Ave., where he found an individual styling himself Dr. Nicholas Clements. The police cooperated with the Health Department and in arresting Clements the interesting discovery was made that not only was he manufacturing fake Neosalvarsan but that he also was engaged in selling fake medical and dental diplomas. One Lazinsky who purported to be a physician declared when apprehended that he had purchased a diploma from Clements and said that Clements assured him that he would have no trouble in practicing without a license because he, Clements, was an inspector of the New York State Medical Association. Among Clements' papers, seized by the police, was a framed letter dated Oct. 31, 1902, addressed to Nicholas Clements, 403 W. Broadway and signed James Taylor Lewis as "Counsel" for the New York State Medical Association. This letter declared that Clements was appointed by Lewis as an inspector to assist "in the apprehension and conviction of iliegal practices of medicine." In addition to Lazinsky, a "Dr." Lacavora. 198 First Ave., Manhattan, has been arrested for practicing medicine without a license and under a "diploma" purchased from Clements. Two other alleged doctors—Brooks Forester Norwood and Stanley Tomassell have been apprehended as a result of the investigation of Clements' diploma mill.

The traffic in fake Neosalvarsan has evidently been lucrative. Tubes of the imitation product cannot have cost more than five or ten cents each to prepare and they were sold to physicians for from $5.50 to $9.00 each depending on the urgency shown by the physician. The printing on the labels and circulars of the genuine preparation had been reproduced photographically for use with the imitation, and the embossed cap on the aluminum container had also been cleverly imitated. Health Department officials in New York believe that the publicity the Department has given to the fraud in the sale of fake Neosalvarsan has resulted in fewer physicians purchasing the preparation from speculators. Most of the recent sales have, it seems, been made to wholesale drug houses who wanted the drug for exportation. One lot alone now in the possession of the Department of Health was purchased by a wholesale export house for $1,800; it is, of course, not worth a cent.

PIERCE'S ANURIC TABLETS

A Fake Cure for Kidney Disease

"Anuric" is "The Newest Discovery in Chemistry," if one is to believe the World's Dispensary Medical Association of Buffalo, N. Y. "Eminent Medical Authorities Endorse It." "A New Remedy for Kidneys, Bladder and all Uric Acid Troubles." Thus does quackery play on the fears of those who are led to believe that every pain in the back means "Bright's disease." "Anuric," the public is told, "is the recent discovery of Dr. Pierce who is head of the Invalids' Hospital and Surgical Institute of Buffalo, N. Y." The concern also puts out such nostrums as "Pierce's Favorite Prescription," "Pierce's Golden Medical Discovery" and other profitable specialties in the merchandise of quackery.

In common with most "kidney disease cures," Anuric is advertised by the "scare" method. Here are some advertisement headlines:

"SUDDEN DEATH Caused by Disease of the Kidneys."
"Why 'Anuric' is an Insurance Against Sudden Death."
"Are You Being Slowly Poisoned?"
"If It Catches You There, Anuric Will Quickly Stop It."

The typical pictures of the stooping man, with his hands over the lumbar region, graphically conveying the idea—as erroneous as it is popular with fakers—that pain in the lower part of the back means disease of the kidney—are strongly in evidence.

"Most cases of kidney trouble may easily be overcome by merely taking a little Anuric with the meals."

"When the kidneys no longer pour forth waste, uremic poisoning occurs, and the person dies . . . it is a good insurance against such a risk to send 10 cents for a sample package of 'Anuric'—the latest discovery of Dr. Pierce."

Needless to say, the changes are rung on the old uric acid superstition:

". . . hundreds . . . daily give their thankful endorsement to this powerful enemy of uric acid."

". . . will throw out and completely eradicate this uric acid from the system."

"Anuric is 37 times more active than lithia in eliminating uric acid . . ."

"Anuric will overcome such conditions as rheumatism, dropsical swelling, cold extremities, scalding and burning urine and sleeplessness due to constant need of getting out of bed at night, by carrying off the uric acid poison."

FRIGHTENING THE VICTIM

Those who purchase a box of "Dr. Pierce's Anuric Tablets For Kidney And Backache" get, in addition to 50 kidney-shaped, red pills, a booklet that may be counted on to convince the average person that he or she has kidney disease. The booklet starts out by giving what purport to be "symptoms of disease of the kidneys" which have been "taken from the 'Diagnostics of Internal Medicine,' by Dr. Butler, whose great work on diagnosis is one of the standards in use by physicians." Apparently, the World's Dispensary Medical Association has turned over the compiling of the "symptoms" to the office boy or some equally massive intellect. By comparing the quotations with the original it is found that first of all the "patent medicine" concern has copied a number of symptoms of movable kidney. The symptoms are tabulated, removed from the context and separately paragraphed. Of course, the public is not advised that these symptoms are of movable kidney. They are led to believe by the "Anuric" booklet that they are "symptoms of disease of the kidneys." The idea of attempting to cure movable kidney with pills would be humorous, if the matter were not so brutally serious. Then

A Famous Physician's Wonderful Discovery
To Prevent Old Age Coming Too Soon!
If It Catches You There
ANURIC
Why Suffer With Backache, Kidneys or Rheumatism?
"ANURIC!"
A New Remedy for Kidney, Bladder and all Uric Acid Troubles

Greatly reduced reproduction of some of the "Anuric" advertisements. Notice the attempt to capitalize the public's misapprehension that a pain in the lower part of the back means kidney disease.

follows another page of symptoms, still, of course, under the "blanket" description of "disease of the kidneys" taken from Dr. Butler's chapter on "Uremia." The public, of course, is not advised that these are symptoms of so deadly a condition as uremia, nor if it were, would it realize the preposterous futility of treating uremia with "Dr. Pierce's Anuric Tablets." Then, still under the "blanket" head, come more symptoms picked at random from Butler's description of acute Bright's disease, chronic Bright's disease (both diffuse and interstitial), pyelitis, nephrolithiasis and perinephritic abscesses. "In no case," says the pamphlet, "are all these symptoms felt at one time."

The booklet then takes up various conditions that are supposed to be more or less related to diseases of the kidney. In the chapter on "Colds, Bronchitis," the reader is advised first to take "Dr. Pierce's Pleasant Pellets" following them up with "Dr. Pierce's Anuric Tablets." In "Stomach Trouble" due to "weak kidneys" the sufferer is told that "Anuric Tablets will be found to help and assist the kidneys to do their work thus relieving all the other organs." In the chapter on "Bright's Disease" we read:

"In the early stages the use of these tablets will speedily restore the kidneys to normal and healthy action and do away with the congestion and changes that appear in the kidneys and their function. It is important that they be used early."

"Menstruation, Scanty, Painful and Profuse" is the subject of another chapter, although just what relationship this bears to kidney disease is not explained. However, "Dr. Pierce's Anuric Tablets and Dr. Pierce's Favorite Prescription" are recommended. Under "Stone in the Bladder" the booklet tells what wonderfully successful results have been achieved by the "Physicians at the Invalid's Hotel and Surgical Institute" by means of an instrument of "their own invention" used for crushing the stone. For "palliative treatment" of the condition "there can be no better agent than Dr. Pierce's Anuric Tablets." In the latter part of the book this statement appears:

"In all these conditions the use of 'Anuric Tablets' is of great benefit. Reference may be made to the writings of eminent medical authorities, quotations from whose works *included in this book* [Italics ours.—Ed.] will give some idea of the extent to which they are used by the medical profession, and as to how satisfactorily they act in removing the diseased conditions that produce these painful maladies."

This can only mean, and evidently is intended to mean, that "Anuric Tablets" are used by the medical profession and that "eminent medical authorities" have referred to "Anuric Tablets" in their writings which references are alleged to be quoted in the booklet. Of course no physician needs to be told that the medical profession does not use Anuric Tablets and that no eminent medical authority has ever praised this piece of quackery.

GARBLED QUOTATIONS

Under the title "What Others Say of Them" the booklet purports to quote the opinions of certain medical writers on, not "Anuric Tablets" as the average reader might infer, but of one or more of the unnamed drugs which are claimed to be ingredients of "Anuric Tablets." Not all of the alleged quotations have been checked, but enough of them have been to show that the matter is misquoted, garbled and that unwarranted liberties have been taken with the author's statements. Yet, the matter is given in the booklet within quotation marks and so arranged as to convey the idea that it has been taken literally and verbally from the books quoted.

For the purpose, doubtless, of adding to the element of mystery, the names of none of the alleged ingredients are mentioned and in quoting the names of some of the alleged ingredients have been suppressed and the non-informative pronoun "it" substituted. To better understand the liberties that have been taken in compiling the advertising "literature" on "Anuric Tablets" part of the matter that has been printed in the "Anuric" booklet alleged to be a quotation from "Lloyd and Felter, in King's American Dispensatory" will be compared in parallel with the original:

ALLEGED QUOTATION AS IT APPEARS IN THE ANURIC BOOKLET	AS IT APPEARS IN THE ORIGINAL
"Rheumatism yields to it, when a swelling of a part or whole of the body is present, or even where there is slight puffiness or glistening of the parts. It is a decided heart stimulant and has relieved the heart oppression due to smoking. It is also a decided antineuralgic, relieving sciatic, pleural and lumbar neuralgia. The most valuable remedy to relieve renal congestion or inflammation. It is one of the best remedies for acute inflammation of the upper passages of the nose and throat."	"Rheumatism yields to it when edema of a part of or whole of the body is present, or even where there is slight puffiness or glistening of the parts. Frequently it must be given with other antirheumatics. "Apocynum is a decided heart tonic. The conditions above named, and a dilated condition of the cardiac ventricles, point to its use. It is not the remedy where the circulation is excited, with hard, quick pulse. Dr. E. R. Freeman reports an inveterate case of angina pectoris benefited by it. Edema was a feature of the case. Dr. Waterhouse relieved the precordial oppression of a smoker with it. Dr. J. C. Kilgour declares it a decided antineuralgic, relieving sciatic, crural, and lumbar neuralgias. Prof. G. C. Gere asserts that it is the most valuable of deobstruents to relieve renal congestion in the second stage of tubular nephritis. Too much, however, must not be expected of it where there are structural changes of the vital organs. Acute inflammation of the upper laryngeal and post-nasal is specifically met by this drug, according to Prof. Webster being nearly as positive as phytolacca, and preferable when the irritation does not extend beyond those parts, and is readily brought on by slight exposure."

By comparing the alleged quotation with the original, it will be seen that the Anuric concern, by separating phrases from their context, omitting qualifying clauses, featuring the alleged virtues and ignoring the limitations of the drugs discussed, attempts to make out a case for what is said to be one of the ingredients of its "kidney cure." The trick is as old as the "patent medicine" business itself and it is entirely fitting that the World's Dispensary Medical Association should run so true to form.

IN THE PRE-ANURIC DAYS

Anuric is one of the newer "patent medicines" put out by the World's Dispensary Medical Association. This concern has for many years published a pretentious book of about 1,000 pages entitled "The Peoples Common Sense Medical Adviser" devoted mainly to advertising the "Invalids' Hotel and Surgical Institute" and incidentally to the exploitation of its nostrums. Before the days of the Anuric Tablets the following statements appeared regarding Bright's disease:

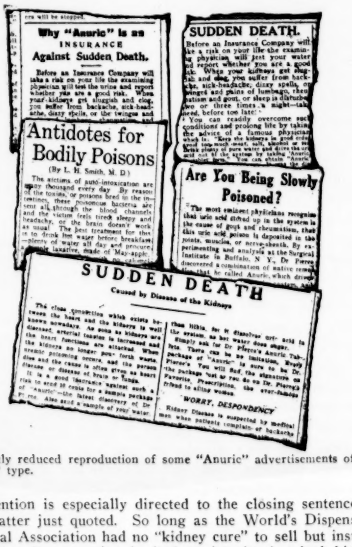
"We venture to assert that less than 1 per cent. of those who imagine they have 'Bright's' have this disease at all."

". . . true Bright's disease is not a common affection, and nine out of ten individuals who think that they suffer from it, or the early stages of the trouble, in fact have something more curable."

". . . in true Bright's, deposits [in the urine] of any kind are rarely met with."

Under the same subject (Bright's disease) the "Common Sense Medical Adviser" published—before the days of "Anuric"—this good advice:

"Not less harmful are the many advertised 'kidney cures,' 'kidney remedies,' 'buchus' and kindred preparations. . . . The cases of Bright's disease reported cured by these preparations are cases of far less dangerous maladies, made to appear, by exaggerated accounts of them, as true Bright's disease. The use of these general, ready-made or proprietary remedies in any case of true Bright's disease is hazardous in the extreme."



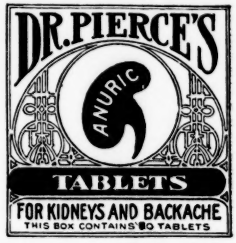
Greatly reduced reproduction of some "Anuric" advertisements of the "scare" type.

Attention is especially directed to the closing sentence of the matter just quoted. So long as the World's Dispensary Medical Association had no "kidney cure" to sell but instead wished to have people who had or thought they had, kidney disease either come to the "Invalids' Hotel" or be treated by correspondence, the concern was willing to tell the truth about "patent medicines" of the "kidney cure" type. ALL OF THIS MATERIAL HAS BEEN DELETED FROM THE BOOK NOW SENT OUT!

For the purpose of determining in a general way the composition of "Dr. Pierce's Anuric Tablets for Kidneys and Backache" the assistance of the American Medical Association's Chemical Laboratory was invoked. The laboratory report follows:

LABORATORY REPORT

"Six original bottles of 'Dr. Pierce's Anuric Tablets' were submitted to the Chemical Laboratory for examination. Each bottle contained 50 red, kidney-shaped, coated tablets, weighing on an average 0.5 gm. (7½ grains). Qualitative tests indicated the presence of acetate, carbonate, chlorid, iodid, phosphate (trace), salicylate, ammonia, calcium, iron (trace) potassium, sodium, emodin, aloin, quinin, hexamethylenamin and sugar. The amount of reducing sugar, calculated as dextrose, was about 35 per cent. Besides the substances mentioned above, there are evidences of other drugs being present. What some of these drugs are may be judged by tracing the so-called quotations appearing in the circular around the bottle. Although in many instances garbled, the statements evidently refer to such plant drugs as *Apocynum cannabinum* (Canadian hemp), *Eupatorium purpureum* (Queen of the meadow), etc. Such a mixture as the above is so unwarranted and foolish, that a more exhaustive examination appeared a waste of time.



But from the qualitative data alone, it can be seen that Anuric Tablets contain essentially sugar, an acetate, iodid and salicylate of either sodium or potassium, quinin, aloin and hexamethylenamin, calcium carbonate is present as part of the coating."

Summed up, it may be said that the selling scheme of Anuric Tablets is first to frighten those who have any vague aches and pains into the belief that something is wrong with their kidneys for which Anuric purports to be the one great remedy. The popular idea that urinary sediments and pain in the lower part of the back mean kidney disease, while false, is assiduously cultivated. It is unnecessary to tell physicians of the dangers of self-diagnosis and self-treatment in such a serious condition as true disease of the kidney. The public is wedded to the idea that every disease can be cured by taking something out of a bottle three or four times a day. The average man does not realize that in the treatment of kidney disease the hygienic and dietetic measures may be of vastly greater importance than drug therapy. Such measures mean a certain amount of discomfort to the patient, the breaking up of old habits, a readjustment of one's method of living. If a cure can be brought about by taking medicine why should one subject himself to the minor discomforts of a modified diet and a more or less exacting hygiene? Therein lies the danger and wickedness of all alleged cures of kidney disease.

Not only are "Anuric Tablets" foisted on the public under false and misleading claims but, as alleged cures for diseases that should never be self-treated, they are fundamentally and essentially vicious.

Facilitating the Making of Books for the Blind.—The *Ugeskrift for Læger* describes a method for manifolding books with raised letters for the blind. The paper to be used for the page is placed between two frames with openings corresponding to the letters to be punched. Instead of punching them on a zinc plate, as is the usual method, an oiled and water-tight paper is stretched below, and the letters are punched with an instrument built on the principle of the ticket punch. A pulplike mass, a mixture of dextrin, starch and rubber, is then spread over the frame. It dries rapidly and when taken off, this hard sheet has the printing in letters in relief. It is then a simple matter to print as many sheets as desired from this matrix. The printing can be done in the home by this means and the books manifolded. The technic is said to be the invention of Max Herz, privat-docent at the University of Vienna.

Correspondence

"PATRIOTISM RAMPANT"

To the Editor:—Continuing the subject of "Patriotism Rampant": Patriotism sometimes goes to excess; but, like the old adage of "better to have loved and lost than never to have loved at all," it is better that patriotism ramp, and wildly ramp, than that it crouch or cower. That the language and literature of a people reflect the spirit of the people is a truism: why then should we wish to perpetuate or encourage by any authoritative act of our own the spirit that decorates authors of "Hymns of Hate"; that finds solemn treaties but "scraps of paper"; that stamps its very money with "God damns" of its enemies; that mints commemorative medals of the sinking of a *Lusitania;* that, while professing good will with its lips, sinks the ships of its friends "without a trace being left"?

I take off my hat to "Patriotism Rampant."

But *science*—so much *science*—will be lost to us if patriotism continues to ramp. To this, like Job to his comforters, I am willing to reply, slightly paraphrasing, "No doubt but the German is the language and all wisdom shall die without it."

W. F. R. PHILLIPS, M.D., Washington, D. C.

To the Editor:—Dr. Robert Peter's letter in THE JOURNAL, Sept. 8, 1917, reminds me of Mark Twain's comment, in Appendix D to his "Tramp Abroad":

". . . for I once heard a gentle and lovely old German lady say to a sweet young American girl: 'The two languages are so alike—how pleasant it is; we say "Ach! Gott!" you say "Goddam!"' "

F. A. MCDERMOTT, Washington, D. C.

FIRST YEAR MEDICAL STUDENTS AND THE DRAFT

To the Editor:—It is a genuine relief to all interested in the medical aspects of national preparedness to know that a way has at last been announced whereby second, third and fourth year medical students may continue their training for future service. First year medical students are not included, doubtless because of the fear that, if they were, medical schools would become a refuge for slackers.

It would indeed seem that there can be no other reason for this failure to provide for the first year student; for the only valid and conclusive argument for keeping any medical student at his work is that there should be at no time, either during the war or after it is over, a diminution in the output of medical schools. The demand for hospital interns and for the recruiting of every branch of the profession with an adequate supply of men trained in modern medicine will continue year by year after the war. Before war was declared, the output was not quite equal to the demand. The demand will be greater—not less—after the war is over.

Far-seeing leaders in medicine recognize today that the medical resources of America will be heavily called on to assist in the rehabilitation of war-devastated Europe. For this reason, if for no other, it is most desirable that there shall be no diminution in the number of students entering on the study of medicine this year. If possible this number should be increased. There can be no question of the demand for the service of these men when they are graduated four years hence.

In my opinion, the delay of the War Department in providing for the continuance of medical students at their work will tell chiefly in deterring men from entering on the study of medicine this year. Many causes will contribute to this result, one of the most important being the natural hesitation to incur the expense of a period of five years of study with no assurance that it will be uninterrupted. Ordinary foresight dictates that it is sound policy to keep this loss of first year students to a minimum.

Granting that it is better to keep the medical schools free from slackers so that only those men will go in for medicine who have the aptitude and taste therefor as a profession, there is a class of first year students many of whom are drafted but against whom no just charge of being slackers can be preferred; namely, those men who, prior to the declaration of war—or even prior to the introduction of the draft bill into Congress—had declared their intention of entering on the study of medicine in the fall of 1917. In many colleges there are premedical courses in which students are formally registered; other college students can show that they had given their names to the deans of medical schools as candidates for entrance; still others can show that their entrance credits had been approved for admission. These men are as truly in the medical ranks as the man who has finished the first year of his medical course. Why should they not be included in the order by which drafted medical students have the privilege of enlisting in the Enlisted Reserve Corps of the Medical Department and so of being discharged from the National Army to continue the study of medicine? They will be needed four years hence; it may be that they will be needed as England needs medical graduates today.

When, last May, college authorities at the urgent request of the Medical Board of the Advisory Council of National Defense discouraged not only medical but premedical students as well from leaving their studies to volunteer for officers' training camps, ambulance corps, hospital units, etc., because continuance at their work was their best form of national service—and this on the one ground given above, that "their country needs their trained and not their untrained service" —these drafted premedical men followed this sound advice and made their contribution to the service of their country. Will the government now do less to make as strong as possible our future medical preparedness?

To accomplish the desired result it is only necessary to extend the privilege of enlisting in the Enlisted Reserve Corps of the Medical Department to all men who can present evidence satisfactory to the Surgeon-General that prior to the declaration of war—or to the introduction of the draft bill into Congress—they were recognized as candidates for admission to any well recognized medical school.

THEODORE HOUGH, PH.D., Charlottesville, Va.
Dean, University of Virginia Department of Medicine.

OPPORTUNITIES FOR WOMEN IN LABORATORY WORK

To the Editor:—I note the editorial mention of this subject in THE JOURNAL, Aug. 18, 1917, p. 569. During the 1917 summer school at the University of Wisconsin, there was offered in the Department of Agricultural Bacteriology a special course in laboratory methods. The object in presenting this course was to give to young women who had had preliminary work in bacteriology an intensive training in those laboratory procedures that are of greatest importance from the standpoint of the diagnostic and control laboratory. To this end special attention was devoted to the methods used in the examination of water and of milk and the diagnosis of tuberculosis, diphtheria and typhoid fever. The course was taken by nineteen young women, all of whom had had at least a year and a half of chemistry and a semester's work in bacteriology. A number of these women had had a more extensive preliminary training. Some of these young women have already accepted positions in laboratories, and a number of others are available for such work.

E. G. HASTINGS, M.S., Madison, Wis.
Professor of Agricultural Bacteriology.

PRIORITY IN APPLICATION OF HEAT IN CORNEAL ULCERS

To the Editor:—In the abstract of the discussion on the papers of Drs. Verhoeff and Shahan (THE JOURNAL, June 30, 1917, pp. 1973 ff.) Dr. L. Webster Fox credits Dr. Barkan with being the originator of the application of heat in the treatment of corneal ulcer. Without in the least wishing to impugn Dr. Barkan's claim as "one of California's pioneers in ophthalmology," I will say that it is a grave error to assign to him the authorship of corneal cauterization. As

Dr. Fox rightly refers to cauterization in corneal ulceration as an epochal step in ophthalmic surgery, which assures its author a permanent place in medical history, it seems to me very desirable that THE JOURNAL should correct the error as to the originator of this procedure.

It was Dr. Martinache, a practicing oculist of San Francisco, who was the first to treat corneal ulcer successfully with the active cautery (as well as iris prolapse and keratitis interstitialis). He published his method, "Ulcers of the Cornea, Treated by the Actual Cautery," in the *Pacific Medical and Surgical Journal*, Nov. 18, 1873, p. 294; also "De l'emploi du cautère actuel dans les maladies des yeux, et principalement dans les ulcères de la cornée," *Annales d'oculistique*, 1878, **80,** 21. It is true, however, that the procedure was taken notice of and came into general use only after the publication of Gayet in 1877.

On the other hand, it sounds rather naive for a writer in the American Encyclopedia for Ophthalmology to remark rather disparagingly that since the active cautery had been in general use for a long time before it must be presumed that it may have been used in this field as well. The answer to that is of course that there is no record to that effect—and there are other eggs of Columbus—and may the wholesome fear for those precious, unique, odd millimeters of pellucid tissue never die!

C. S. G. NAGEL, M.D., San Francisco.

DRAFTING PHYSICIANS

To the Editor:—Referring to your editorial of Aug. 11, 1917, on the selective draft for physicians, it is quite possible that the prevalence of "hysteria" with reference to the providing of adequate medical service for the new Army would be reduced if the acquiring of sufficient physicians was done by such a selective draft as would take into consideration both the individual's wishes, his obligation to community or family, and the government's need for his services.

The editorial of August 11 disregards the points which alone make a selective draft desirable. It is not the absolute number of men that has been, or can be, obtained for the medical service which is causing, or has caused, anxiety on the part of the government, or "hysteria" on the part of the Committee of National Defense or of the individual physician.

The figures quoted in the editorial are correct, but they speak of physicians without qualification as to the age or fitness of these men for active military service.

There are three things that make this selective draft of physicians particularly desirable: (1) the best protection of the government's needs; (2) the protection of the community, which should be assured adequate medical attendance, and (3) the protection of the physician himself from decisions which perhaps may have been made at times unwisely through the very "hysteria" referred to above.

The first, the needs of the government, of course includes the second and third. The economical use of the medical material is of first importance, if this is to be a long war. The continuance of the output of doctors through the conservation of medical students and teachers, and the maintenance of the health of the community at large are as important as the immediate providing of a given number of physicians for military service.

Regarding the number of men available: While the figures given in THE JOURNAL are satisfactory, if looked at on the basis of the present law providing seven medical men for 1,000 troops, they immediately become quite unsatisfactory if looked at in the light of the probable ultimate decision to provide twenty medical officers per thousand troops. It will be difficult to obtain the latter number by the volunteer system without falling into the same error that has brought about so much local distress in Great Britain through lack of medical attention at home.

Second, protection of the community: Under the volunteer system there can be no control exercised over the reduction of medical men in certain districts to a number fewer than necessary for proper care in that community. If the number of men taken from a given locality depends solely on the decision of the individual physician, as to whether he would like to, or should, enter military service, some localities may be devastated, others may be very little affected.

An even distribution of the remaining talent is impossible. Under the selective draft of physicians this matter would be properly covered.

Third, the protection of the physician himself: It must be admitted that the decision of many men as to the relative importance of military or home service has been wrongly made, through the feeling that their example makes it necessary for them to enlist, in spite of the knowledge that their professional capacity makes their services particularly desirable in nonmilitary affairs.

A selective draft puts the individual on record as to his qualifications and obligations, but leaves his disposition to the proper authorities. It offers the great asset to the individual of the sense of direct service, whether his orders involve civilian or military duties. The "tremendous sacrifices" referred to in the summary of the editorial would probably be reduced to a minimum under the action of a selective draft, making the most economical use of medical material at hand, without "coercion," without "threats," but with a view of sending the man best fitted for the service into the Army, and conserving all nonmilitary interests to the country by holding in their proper places men who should not go, but who certainly do go through their anxiety to avoid any possible appearance of selfish avoidance of military duty.

HERBERT B. WILCOX, M.D., New York.

Queries and Minor Notes

ANONYMOUS COMMUNICATIONS and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

ACUTE DIARRHEA IN INFANTS

To the Editor:—In THE JOURNAL, Aug. 25, 1917, p. 645, it is stated that lactose in from 3 to 5 per cent. solution in water should be given. Will you please explain to me why, how much, and how it should be given? Also please explain the advantage of starch water. Also please explain the methods of administration, indications for, and advantages of giving glucose. If this is published please withhold my name.

A. W. P.

ANSWER.—Many infants suffering from acute diarrhea die of acidemia, especially if the diarrhea is accompanied by vomiting. Hence to prevent acidemia a little sugar or starch is advisable during the starvation, or insufficient diet, period. If acidemic symptoms are present, starch and sugar are essential, and if they cannot be retained by the stomach, small colon injections of these substances are advisable. Furthermore, sugar in any form is a food and a stimulant, and it will even strengthen a weak heart in prostration.

Lactose (milk sugar) is better than sucrose (cane sugar) because it is less sweet and is less apt to cause fermentation in the stomach and intestine; it is a diuretic also, and in these diarrheal conditions the kidneys act very sluggishly. A 3 to 5 per cent. solution of lactose in water (or in a thin cereal gruel if such a food is advisable) in 1 or 2 ounce doses may be given at two or three hour intervals. The little patient should receive plain water between these feedings, unless more food is advisable.

Starch water acts like any other bland starchy food; in other words, it is a food. Warm starch solutions are very soothing to every inflamed mucous membrane, whether it is the mouth, the throat, the gullet, the stomach, the intestine or the rectum.

Glucose (grape sugar) is not so sweet as sucrose, but it is not so well tolerated as lactose, as it is rather irritant. The glucose of the Pharmacopeia is a syrupy liquid, very soluble in water.

In acidosis conditions, glucose is valuable as a nutrient enema, given either in water or in milk. A 3 to 10 per cent. solution, or even stronger, in milk or in physiologic sodium chlorid solution may be given by the rectum. For a child, 2 or 3 ounces, repeated every six hours for a few times, would be a fair dose. In older patients the rectal drip method is valuable.

When glucose is absorbed into the blood it is theoretically more quickly ready for muscle use than are other sugars;

hence it is frequently used in serious conditions, such as diabetic acidosis, persistent vomiting, or when for any reason food cannot be taken by the stomach.

STOCK AND BOND TRANSACTIONS IN RELATION TO THE INCOME TAX

To the Editor:—Please give me some information on the following questions:

1. If a physician, druggist or lawyer purchases a railroad or other bond at 90 and sells it at 95, how shall the result be treated in his personal income return? If the same person purchases the same kind of security at 90 and sells at 85, how shall the result be treated?

2. If the same person purchases a railroad or other stock at 80 and sells at 100, how shall the result be treated in his personal income return? If the same person purchases a similar security at 80 and sells at 70, how shall the result be treated in his income return?

The ruling now stands that if any one, except a stockbroker, purchases stock and sells at a profit, he must return the result as income, but if he sells at a loss he will not be allowed to deduct such loss from his income.

Kindly omit my name. ———, Chicago.

ANSWER.—1. If a physician buys a $1,000 bond at 90 and sells at 95, he makes a profit of $50, which must be reported as income; if the same man later in the year buys a $1,000 bond at 90 and sells at 85, he losses $50, which can be deducted from his total income because he gained $50 during the year in buying and selling a bond. In other words, his loss is offset by his profit.

2. If a person buys a share of stock at 80 and sells at 100, he must report the profit of $20 as income; if the same person later buys a share of stock at 80 and sells at 70, he has the right to deduct his loss of $10 when making his income return. However, if his losses on these transactions exceed his profits, he cannot deduct more than the aggregate profits during the year.

Profits made during the year on transactions in stocks and bonds must be returned as income. The only deduction which can be made for losses experienced during these transactions is an amount smaller or equal to the amount of profits derived therefrom; in case only losses have been incurred during the year, such losses cannot be deducted from the income.

It must be understood that this does not apply to regularly established firms dealing in stocks and bonds as a business.

LITERATURE ON POISON GASES

To the Editor:—Will you kindly send me any literature on the subject of poison gases and the treatment used in warfare that you may have at your disposal? S. T. F., Camp Dodge, Iowa.

ANSWER.—The following is a list of recent articles on poison gases and their treatment in warfare:

Miller, J.: Blood Changes in Gas Poisoning, *Lancet*, London, May 26, 1917.

Pisano, G.: Toxic Action of Asphyxiating Gases, *Gazz. d. osp.*, Dec. 3, 1916.

Ujlaki: Injuries from Asphyxiating Gases, *München. med. Wchnschr.*, Jan. 2, 1917.

Irvine: Gas Poisoning from Fumes of Explosives, *Brit. Med. Jour.*, Jan. 29, 1916.

Boudreau: Iodin Internally in Gas Asphyxia, *Jour. de méd. de Bordeaux*, September, 1916.

Treatment of Gas Asphyxia, THE JOURNAL, April 21, 1917, p. 1190.

Immediate Treatment of Patients Suffering from Chlorin Gas Poisoning, Paris Letter, THE JOURNAL, Jan. 1, 1916, p. 45.

Lung, G. A.: Asphyxiating Gases in Warfare, *Mil. Surg.*, November, 1915.

Hill, L.: Gas Poisoning, *Brit. Med. Jour.*, Dec. 4, 1915.

EYE MANIFESTATIONS IN ARSENIC POISONING—ARSENIC IN THE URINE

To the Editor:—1. What are the eye manifestations of chronic arsenical poisoning?

2. Is arsenic, in the most minute quantity, ever found in normal urine?

Please do not use my name if you publish this. W. F. R.

ANSWER.—1. In the second phase of chronic arsenic poisoning the conjunctiva is often red and inflamed, and symptoms of coryza appear. In the prolonged therapeutic action of arsenic, the *first* indications are suffusion and swelling of the conjunctiva and eyelids. "Impaired nutrition or toxic actions give rise to polyneuritis, with atrophy of the muscles, disturbance and paralysis of the special senses (blindness)" (Sollmann, Torald: Manual of Pharmacology, 1917, p. 740).

2. Arsenic is not found in normal urine; but when ingested, in any manner, slightly less than one fifth is excreted by the kidneys within twenty-four hours. The remainder is slowly eliminated by means of the hair and the epidermis.

Medical Education and State Boards of Registration

COMING EXAMINATIONS

ARIZONA: Phoenix, Oct. 2-3. Sec., Dr. John Wix Thomas, 306 Goodrich Bldg., Phoenix.

CALIFORNIA: Los Angeles, Oct. 9-13. Secretary, Dr. Charles B. Pinkham, State Capitol, Sacramento.

COLORADO: Denver, Oct. 2. Sec., Dr. David A. Strickler, 612 Empire Bldg., Denver.

DISTRICT OF COLUMBIA: Washington, Oct. 9-11. Sec., Dr. Edgar P. Copeland, The Rockingham, Washington, D. C.

GEORGIA: Atlanta, Oct. 9-11. Sec., Dr. C. T. Nolan, Marietta, Ga.

IDAHO: Pocatello, Oct. 2. Sec., Dr. Charles A. Dettman, Burke.

ILLINOIS: Chicago, Oct. 9-11. Superintendent of Registration, Mr. F. C. Dodds, Springfield.

IOWA: Des Moines, Oct. 9-11. Sec., Dr. G. H. Sumner, State House, Des Moines.

MICHIGAN: Lansing, Oct. 9-11. Sec., Dr. B. D. Harison, 504 Washington Arcade, Detroit.

MINNESOTA: Minneapolis, Oct. 2-5. Sec., Dr. Thomas S. McDavitt, Lowry Bldg., St. Paul.

MONTANA: Helena, Oct. 2. Sec., Dr. William C. Riddell, Power Bldg., Helena.

NATIONAL BOARD OF MEDICAL EXAMINERS: Chicago, Oct. 10-18. Sec., Dr. J. S. Rodman, 2106 Walnut St., Philadelphia.

NEW JERSEY: Trenton, Oct. 16-17. Sec., Dr. Alexander MacAlister, 438 E. State St., Trenton.

NEW MEXICO: Santa Fe, Oct. 8. Sec., Dr. R. K. McClanahan, East Las Vegas.

NEW YORK: Albany, Buffalo, New York City and Syracuse, Oct. 2-5. Chief, Examinations Division, Harlan S. Horner, State Education Bldg., Albany.

OKLAHOMA: Oklahoma City, Oct. 9-10. Sec., Dr. Ralph V. Smith, 502 Daniel Bldg., Tulsa.

PORTO RICO: San Juan, Oct. 2. Sec., Dr. M. Quevedo Baez, San Juan.

RHODE ISLAND: Providence, Oct. 4-5. Sec., Dr. Byron O. Richards, State House, Providence.

UTAH: Salt Lake City, Oct. 1-2. Sec., Dr. G. F. Harding, Templeton Bldg., Salt Lake City.

WYOMING: Laramie, Oct. 10-12. Sec., Dr. H. E. McCollum, Laramie.

South Dakota July Examination

Dr. P. B. Jenkins, secretary of the South Dakota State Board of Health and Medical Examiners, reports the practical and written examination held at Waubay, July 10-14, 1917. The examination covered 15 subjects and included 125 questions. The percentage required to pass was 75. Of the 11 candidates examined, 10 passed and one failed. Four candidates were licensed through reciprocity. The following colleges were represented:

PASSED

College	Year Grad.	Per Cent.
Chicago College of Medicine and Surgery	(1911)	83.1
Rush Med. Coll. (1893) 89.7; (1913) 82.5; (1916) 84.4;	(1917)	89.5
University of Illinois	(1913)	88.4
State University of Iowa, Coll. of Homeo. Med.	(1905)	86.1
University of Louisville	(1912)	81.2
University of Nebraska	(1915)	86.1
University of Vermont	(1908)	88.1

FAILED

St. Louis College of Physicians and Surgeons	(1915)	68.1

LICENSED THROUGH RECIPROCITY

College	Year Grad.	Reciprocity with
Rush Medical College	(1913)	N. Dakota
University of Illinois	(1915)	Minnesota
University of Minnesota	(1915)	Minnesota
St. Louis University	(1906)	N. Dakota

Vermont July Examination

Dr. W. Scott Nay, secretary of the Vermont State Board of Medical Registration, reports the oral, practical and written examination held at Burlington, July 10-12, 1917. The examination covered 12 subjects and included 90 questions. The percentage required to pass was 75. Eleven candidates were examined, all of whom passed. Two candidates were granted reregistration certificates. The following colleges were represented:

PASSED

College	Year Grad.	Per Cent.
University of Maryland	(1916)	75.7
University of Vermont (1916) 91.1; (1917) 85.5; 86.9; 87.3; 87.3; 87.4; 88.4; 89; 90.1.		
University of Naples	(1912)	84.5

Book Notices

FOOD FOR THE WORKER. The Food Values and Cost of a Series of Menus and Recipes for Seven Weeks. By Frances Stern and Gertrude T. Spitz, with a Foreword by Lafayette B. Mendel, Professor of Physiological Chemistry in the Sheffield Scientific School of Yale University. Cloth. Price, $1 net. Pp. 131. Boston: Whitcomb & Barrows, 1917.

This volume was especially prepared with a view to the needs of the wage earner, and was planned to furnish a series of balanced menus for the use of the visiting housekeeper or social worker. Dr. Lafayette B. Mendel has prepared a foreword to this volume, which he considers a timely attempt at a practical solution of satisfying the needs of the average family, furnishing them with the indispensable nutrients in a ration that is especially palatable, digestible and liberal in quantity, and well within the purchasing power of the family. The authors provide tables which Dr. Mendel states indicate at once "that there is no superfluity of food, no unwarranted excess of calories suggested." The authors consider first the requirements of the family; a general consideration of the subject is followed by suggestions as to purchasing economically. Menus are planned for various days of the week over a period of seven weeks. Most of the book is devoted to these tables and diets for forty-nine days. Following the tables are recipes for the foods contained in the tables, giving the measure, weight in grams, protein, fat and carbohydrate calories, and cost in cents of each constituent. Following these recipes are tables of the cost of supplies as based on calculations during January, July and November of 1916. A special section is devoted to an article on how to build and use a fireless cooker. An ingenious table at the end of the book is a practical compilation of the menus for seven weeks so that at a glance the reader can see how to compile the diets for any day.

PRACTICAL DIETETICS, WITH REFERENCE TO DIET IN HEALTH AND DISEASE. By Alida Frances Pattee. Eleventh Edition. Cloth. Price, $1.75. Pp. 502. Mount Vernon, N. Y.: A. F. Pattee, 1917.

This book, now in its eleventh edition, has been thoroughly revised in accordance with the modern tendencies in the treatment of numerous diseases by modification of the diet. It is, of course, especially prepared with a view to the demands of the trained nurse. A copy of state board requirements in dietetics and examinations is furnished with each copy. The book is divided into three parts: (1) principles of nutrition and food preparation; (2) practical application of principles of nutrition; (3) hospital dietaries, diet in disease, and diet in special diseases. In the first part there are general instructions as to estimating food values, feeding the sick, preparation of trays, and numerous tables, weights, measures and food values. The second part is devoted wholly to recipes classified as beverages, animal foods, vegetable foods, and nutritious desserts. The third part gives in outline form all of the special diets commonly used in hospitals, and then lists diets for various diseases as prepared by different physicians. It is an excellent compilation, and will be found a most practical aid for both physicians and nurses.

ANIMAL MICROLOGY. Practical Exercises in Zoological Micro-Technique. By Michael F. Guyer, Ph.D., Professor of Zoology in the University of Wisconsin. With a Chapter on Drawing by Elizabeth Smith, Ph.D., Instructor in Zoology in the University of Wisconsin. Revised Edition. Cloth. Price, $2 net. Pp. 289, with 74 illustrations. Chicago: The University of Chicago Press, 1917.

The first edition of this book, primarily a textbook for college students, appeared in 1911. The numerous advances in this subject since that time prompted the authors to undertake a thorough revision. A chapter on intestinal microbiology has been added. Dr. Marshall believes that the word "microbiology" is the best expression for the study of bacteria. But he says, "Whether it should be called Protistology, Microbiology, Bacteriology, Mycology, or something else must be left for the future to determine." The various chapters were prepared by twenty-five Canadian and American bacteriologists, including such authorities as M. Dorset, W. D. Frost, Edward Fidlar, H. W. Hill, Earle B. Phelps, L. F. Rettger and E. E. Tyzzer. The book is almost encyclopedic, covering every phase of the relation of bacterial organisms to human life. Chapters of especial interest are those on the microbiology of milk and milk products, and on the control of infectious diseases.

GOOD HEALTH: HOW TO GET IT AND HOW TO KEEP IT. By Alvah H. Doty, M.D. Cloth. Price, $1.50 net. Pp. 304, with 32 illustrations. New York: D. Appleton & Co., 1917.

This popular treatise is intended to inspire in its readers that cooperation which is essential to combat physical inefficiency, ill health and disease, and, as is said, to inculcate an intelligent appreciation of the fundamental principles of hygienic and sanitary laws and ordinances and a definite sense of responsibility in maintaining bodily health for both individual and social ends. It distinguishes between and treats of hygiene, which relates to the person, and sanitation, which concerns the surroundings. Its teachings are in the main in accordance with present scientific knowledge and sanitary and hygienic practice.

FOOD FOR THE SICK. A Manual for Physician and Patient. By Solomon Strouse, M.D., Associate Attending Physician, Michael Reese Hospital, and Maude A. Perry, A.B., Dietitian at the Michael Reese Hospital, Chicago. Cloth. Price, $1.50 net. Pp. 270. Philadelphia: W. B. Saunders Company, 1917.

The authors discuss each disease in order to make plain the reasons for the dietary rules that follow. Complete diets are given, with instructions in the preparation of the food and the recipes. The first chapter considers the general subject of food and its uses; the second is devoted wholly to the subject of diabetes, the Allen treatment being given in detail. There are numerous special diabetic menus and recipes. Other chapters are devoted to gout, diseases of the kidney, the heart, prepared by Dr. Sidney Strauss, the stomach and intestine, the liver and respiratory system, the skin, prepared by Dr. Philip Schaffner, fevers, obesity, anemia, scurvy and goiter.

COMPENDIUM FOR MEDICAL OFFICERS. By Gilbert E. Seaman, M.D., F.A.C.S., Major and Chief Surgeon, Wisconsin National Guard. Paper. Pp. 165, with illustrations. Madison: State of Wisconsin, 1917.

The information contained in his compendium represents lectures and lessons in the course for medical officers of the National Guard conducted during April and May, 1917. It is composed principally of quotations of laws and orders directly related to the work of the Medical Department, and other information compiled from various standard textbooks on the subject. This booklet contains, in brief, much that the medical officer needs to know and can find elsewhere only by referring to a number of different authors. It will form an excellent review on modern army organization and methods.

SEX-HYGIENE. A TALK TO COLLEGE BOYS. By Frederic Henry Gerrish, M.D., LL.D., Professor Emeritus of Surgery in Bowdoin College. Cloth. Price, 60 cents net. Pp. 51. Boston: Richard G. Badger, 1917.

This book, which represents a lecture delivered for a number of years to the freshman class at Bowdoin by Professor Gerrish, has been described as a "scientifically direct" and "ethically elevated" discussion of the subject of sex hygiene. It accords accurately with that description. It is a convincing presentation of the subject.

MODERN DIETETICS. Feeding the Sick in Hospital and Home, with Some Studies on Feeding Well People. By Lulu Graves, Dietitian, Lakeside Hospital, Cleveland. Cloth. Price, $2. Pp. 214. St. Louis: The Modern Hospital Publishing Company, 1917.

This is a compilation of the articles by Miss Graves of the Lakeside Hospital, Cleveland, which have appeared in the *Modern Hospital* under the general title "Feeding the Hospital." The book contains a good general discussion of dietetics, with chapters containing special diets in disease, instructions for training schools, school work in dietetics, numerous recipes and tables.

Social Medicine, Medical Economics and Miscellany

Carbon Monoxid Poisoning in the Steel Industry

J. A. Watkins of the Public Health Service has made a study of carbon monoxid poisoning in the steel industry, and in Technical Paper 156 gives his findings. Carbon monoxid gas occurs in the course of many industrial processes, and aside from fatal and other accidents from acute "gassing" it is a source of ill health in those who are compelled to work in situations in which they are exposed to it in greater or less quantity. In connection with the steel industry the sources of this gas are blast furnaces, gas engines, gas producers, gas-fired boilers, cupola furnaces, dolomite furnaces, dinky engines, and it may even be found in shanties or rest rooms. While the factors of individual resistance and the matter of adjustment of the bodily mechanism to carbon monoxid poisoning enter into the effect on different persons, its constant influence is perhaps always deleterious, and the result is final incapacity. One of the earliest symptoms of carbon monoxid poisoning as described by Watkins is persistent and distressing headache, accompanied at times by nausea and vomiting. Sometimes the headache does not begin until the person has quit work, but in most instances it begins while at work and increases during the day. Giddiness is common, and there may be staggering, muscular weakness, lack of coordination and rapid fatigue. Derangements of digestion are common, with nausea and vomiting, and diarrhea may occur. Among the most serious effects of the poisoning are palpitation and cardiac distress, with occasional dilatation; but the chief effect is on the nervous mechanism controlling the heart. The pulse is irregular, sometimes being slow, at others fast, the irregularity being increased on slight exertion. The oxygen content of the red blood cells is displaced, reduced hemoglobin resulting, with consequent anemia which may be resistant. Nervous symptoms are less frequent, but there may be neuritis, with ensuing paralysis or mental derangements such as melancholia or hallucinations. Albumin and sugar may be found in the urine. Persons not entirely incapacitated are physically below par, and their industrial efficiency consequently suffers. Careful tests of the air in various situations in the steel industry in which men are compelled to work showed variations in the carbon monoxid content ranging from 0.01 to 3.40 per cent., the high figures being found only exceptionally. In this study no physical examinations were made of employees working in the places from which air samples were taken, but from experimental work on carbon monoxid poisoning and from observations made in serious and fatal cases it has been determined that 0.2 per cent. of carbon monoxid for thirty minutes will be sufficient temporarily to incapacitate the person exposed. Increase in amount of gas or length of exposure would be dangerous. Serious symptoms may result from exposure to as small amounts as 0.01 per cent., especially if the exposed person does much physical work. It is said from the industrial hygienist's standpoint that air where men work containing the last mentioned amount of carbon monoxid is dangerous, and that such a condition should be remedied.

Causes of Death by Occupation

The occupational mortality experience of the Metropolitan Life Insurance Company's industrial department as compiled by Louis I. Dublin, Ph.D., for 1912-1913 is set forth in a reprint by the Bureau of Labor Statistics, U. S. Department of Labor, in Industrial Accidents and Hygiene Series No. 11. The bulletin comprises a study of 94,269 deaths which occurred in 1911, 1912 and 1913 among occupied white males, and 102,467 deaths in the same period in white women, aged 15 and over, insured in the industrial department of the company. Each occupation is discussed with reference to the death rate, and tables show the exact figures and percentages by age periods. The table of causes of death in all occupations combined shows some interesting figures. The high points for deaths at ages over 15 were for typhoid fever, 1,390; pulmonary tuberculosis, 19,349; cancer, 4,578; cerebral hemorrhage, apoplexy and paralysis, 5,825; organic diseases of the heart, 11,323; pneumonia (lobar and undefined), 6,766; accidental violence, 8,752; all other causes than those named in the table, 18,719; for women, among the 102,467 deaths for the same diseases the figures were: typhoid fever, 1,187; pulmonary tuberculosis, 14,782; cancer (all forms), 10,098; cerebral hemorrhage, apoplexy and paralysis, 8,552; organic diseases of the heart, 15,183; pneumonia (lobar and undefined), 6,034; accidental violence, 2,887; all other causes than those named in the table, 22,362. A comparison of deaths from all causes between males and females for the various age periods shows the following percentages: between ages 15 and 24, female 10.1, male 11.8; 25 and 34, female 12.1, male 13.7; 35 and 44, female 13.1, male 16.2; 45 and 54, female 15.4, male 17.7; 55 and 64, female 21.0, male 20.3; 65 and over, female 28.4, male 20.3. The average age at death among males in various occupations was found to be as follows: bookkeepers and office assistants, 36.5; enginemen and trainmen (railway), 37.4; plumbers, gas fitters and steam fitters, 39.8; compositors and printers, 40.2; teamsters, drivers and chauffeurs, 42.2; saloonkeepers and bartenders, 42.6; machinists, 43.9; longshoremen and stevedores, 47.0; textile-mill workers, 47.6; iron molders, 48; painters, paperhangers and varnishers, 48.6; cigarmakers and tobacco workers, 49.5; bakers, 50.6; railway track and yard workers, 50.7; coal miners, 51.3; laborers, 52.8; masons and bricklayers, 55.0; blacksmiths, 55.4; farmers and farm laborers, 58.5. It is said that occupations having a low age at death are, in general, either composed of large proportions of young men or characterized by special occupational hazards inducing an early death. On the other hand, occupations having a high average age at death must not necessarily be supposed to exhibit freedom from injurious influences. The condition may result from the high average age of the living.

Medicolegal

Sufficient Complaint and Evidence in Action for Malpractice

(*Schillinger et al. vs. Savage* (*Ind.*), *115 N. E. R. 321*)

The Supreme Court of Indiana affirms a judgment for $2,000 damages in favor of plaintiff Savage for alleged malpractice by the defendants in reducing and treating a fracture of his left femur. The court says that it was contended by the defendants that the complaint did not show that the negligence charged against them was the proximate cause of the plaintiff's alleged injury, that no allegation was made showing that the alleged negligence was the result of the violation of any duty owing by the defendants to the plaintiff, and that the defendants were employed by the plaintiff to treat this fracture. On the points suggested by the defendants, the complaint, in substance, alleged that the defendants were practicing physicians and surgeons, actively engaged in the practice of such profession; that they held themselves out to the public as practicing physicians and surgeons; that they as physicians and surgeons, both working together, endeavored to reduce the fracture, and entered on the work of setting and adjusting the broken bone, and of treating and caring for it, in all things as skilled and competent physicians should do; that they did unskilfully what they undertook to do, and omitted to do things that they should have done as skilful physicians and surgeons; and that solely on account of the negligence, carelessness, unskilfulness, unprofessional and improper manner and method used, the bone was caused to grow and become crooked, deformed and weak. Thus the complaint charged that the alleged carelessness was the proximate cause of the injury complained of. The complaint did not expressly allege the employment of the defendants by the plaintiff, but it did contain the allegations referred to, which, taken as a whole, stated that the defendants, under the circumstances stated, undertook to treat the plaintiff's injury as skilful and

competent physicians and surgeons should do; that the plaintiff reposed full faith and confidence in them as physicians and surgeons, and fully relied on the knowledge and skill that they possessed, or should have possessed, as such physicians and surgeons, and fully, carefully and explicitly carried out and performed those acts and things that they counseled, instructed and advised him to do. Thus a relationship came into existence between the defendants and the plaintiff, which imposed on the former the duty to exercise the average degree of skill possessed and exercised in like cases by members of their profession practicing in similar localities; and out of such relationship grows an obligation in favor of the patient, if injured by a failure to exercise said degree of skill and care. The complaint was not defective in the particulars contended for.

The record showed evidence tending to support the cause of action alleged. It was also true that a considerable amount of the evidence tended to support the contention of the defendants; there was, however, a strong conflict in the evidence, and these matters were submitted to and passed on by the jury. This court cannot weigh such conflicting evidence. Nor was there error in a refusal to instruct the jury that under the law the defendants were presumed to have exercised reasonable care and skill in setting and treating the plaintiff's fracture. It is the province of the jury to draw presumptions of fact from the evidence or from a given state of facts, and it is error for the court to instruct it as to what inferences it shall draw. The question of whether the defendants exercised reasonable care and skill in treating the plaintiff's fracture was properly left to the jury.

An Invalid Law as to Removal of County Health Officers

(Mississippi State Board of Health vs. Matthews (Miss.), 74 So. R. 417)

The Supreme Court of Mississippi, Division A, in a very short opinion, affirms a decree in favor of complainant Matthews, who filed a bill in chancery to enjoin the state board of health from putting into effect an order removing him from the office of county health officer of a county. The court holds that Section 175 of the state constitution, which provides that all public officers, for wilful neglect of duty or misdemeanor in office, shall be liable to presentment or indictment by a grand jury, and, on conviction, shall be removed from office, or otherwise punished as may be prescribed by law, provides the exclusive method by which a public officer may be removed from office. Consequently, Section 2490 of the Mississippi Code of 1906, so far as it authorizes the state board of health to remove a county health officer, is void.

Physicians and Fees Under Workmen's Compensation Act

(In re Huxen (Mass.), 115 N. E. R. 426)

The Supreme Judicial Court of Massachusetts says that the only questions raised by this appeal related to the obligation of an insurer under the workmen's compensation act to pay the fees of a physician to an injured employee. The first point to be decided was whether the physician can be a party to a proceeding under the act. It has been held that the questions relating to services of physicians are proper for consideration under the act, and since the fees are to be fixed by a committee of arbitration in case of disagreement, it seems to follow necessarily from the terms of the act that, when the physician is the party interested in that matter, he may be a party to the proceedings.

The employee in this case was injured by being burned with live steam. At his request he was treated at his home for a period of two weeks, after which he was able to go from his home to the physician's office and was treated there. The entire evidence about the kind of treatment after the expiration of the two weeks was from the physician, that when the employee came to his office he had to bandage around the chest and shoulder and clean the area of granulation; that there was a back area in which there was proudflesh that had to be cleaned off. The question was whether this constituted an unusual case within the meaning of the statutory provision that during the first two weeks after the injury, and, if the employee is not immediately incapacitated thereby from earning full wages, then from the time of such incapacity, and in unusual cases, in the discretion of the board, for a longer period, the association shall furnish reasonable medical and hospital services, and medicines, when they are needed. It is manifest that the legislature did not intend to impose all expenses of medical attendance on the insurer. The obligation to provide such attendance as an absolute duty is confined to two weeks after the injury. It is manifest that in the aggregate there must be many cases in which medical attendance may be required for a longer period. It is not in an ordinary case requiring longer medical attendance that the discretion of the board may be exercised to charge this attendance to the expense of the insurer. It is only in "unusual cases" that it may do so. There would be grave doubt whether a case in which the employee is able to go from his home in Cambridge to an office in Boston could be so unusual as to be within the purview of the act. But there was another circumstance which must be considered in this case.

After there had been several treatments at the physician's office in Boston, the insurer wrote to the employee offering to pay one dollar per visit to the physician, or to provide its own physician free of charge. That letter was shown by the employee to the physician, who continued to treat him. It is manifest that after the letter was shown to him, he knew the attitude of the insurer which it was sought to hold liable for his services. There was no intimation that the physician proffered by the insurer free of charge to the employee was not competent and a proper person to treat the employee. The fact that the employee was able to go to the office for treatment made it plain that the case was no longer critical. It was not then a case of emergency. Under the conditions disclosed, there was no "other justifiable cause" for the continued attendance of the first physician after the date of the letter from the insurer to the employee. If he chose to continue to treat the employee at the expense of the insurer under these circumstances, he must do so on the terms offered. Wherefore the court orders that the amount decreed to be due to the physician be reduced to $73.

Presumption from the Commission of Numerous Abortions

(People vs. Schultz-Knighten (Ill.), 115 N. E. R. 140)

The Supreme Court of Illinois holds that, in a prosecution for the murder of a woman by the performance of an abortion on her, evidence that the defendant committed an abortion on another woman which resulted in her death is competent for the purpose of showing the knowledge of the defendant and her guilty intent. Though a single abortion may have been committed for a sufficient reason and with no criminal intention, repeated acts of that character may create a reasonable presumption that they were not done to preserve life or ignorantly, but with criminal intent and knowledge; and the more numerous the acts the stronger, ordinarily, will be the presumption.

Society Proceedings

COMING MEETINGS

Amer. Acad. of Ophthal. and Oto-Laryng., Pittsburgh, Oct. 29-30.
Am. Assn. for Study and Prev. of Inf. Mort., Richmond, Va., Oct. 15-17.
American Association of Railway Surgeons, Chicago, Oct. 17-19.
Am. Assn. Obstetricians and Gynecologists, Newark, N. J., Sept. 17-19.
American Roentgen Ray Society, New York, Sept. 20-22.
Colorado State Medical Society, Colorado Springs, Sept. 25-27.
Delaware State Medical Society, Middletown, Oct. 8-9.
Indiana State Medical Association, Evansville, Sept. 26-28.
Kentucky State Medical Association, Louisville, Oct. 16-18.
Medical Association of the Southwest, Kansas City, Oct. 15-17.
Minnesota State Medical Association, St. Paul, Oct. 10-12.
Mississippi Valley Medical Association, Toledo, O., Oct. 9-11.
Missouri Valley Medical Society, Lincoln, Neb., Sept. 20-21.
Nevada State Medical Association, Reno, Oct. 18-19.
New Mexico Medical Society, Las Cruces, Oct. 4-6.
Pennsylvania State Medical Society, Pittsburgh, Sept. 24-27.
Southern Medical Association, Memphis, November 12-15.
Vermont State Medical Society, Barre, Oct. 11-12.
Virginia State Medical Society, Roanoke, Oct. 23-26.
West Virginia State Medical Association, Fairmont, Oct. 2-4.
Wisconsin State Medical Society, Milwaukee, Oct. 3-5.

Current Medical Literature

AMERICAN

Titles marked with an asterisk (*) are abstracted below.

American Journal of Public Health, Bost[on]

August, VII, No. 8

1 Sanitation in Some Canadian Barracks and Camps. J. G. Fitzgerald, Toronto, and J. W. S. McCullough, Ontario.—p. 655.
2 Fallacy of Reading Accurately Gas Percentages in Fermentation of Lactose Peptone Bile and Lactose Broth. W. W. Browne, New York.—p. 663.
3 Gasoline Engine Exhaust-Gas Poisoning. R. P. Albaugh, Columbus, Ohio.—p. 664.
4 De-Lousing Measures of Sante Fe Railway System. M. F. Boyd, Iowa City, Ia.—p. 667.
5 Saving Sight; Saving Citizens. E. M. Van Cleve, New York.—p. 675.
6 Activated Sludge Experiments at University of Illinois. E. Bartow, F. W. Mohlman and J. F. Schnellbach, Urbana, Ill.—p. 679.
7 Ammonia from Action of Caustic Soda on Organic Matter Source of Error in Determination of Nitrates in Sewage and Sewage Effluents by Reduction Method. S. DeM. Gage and H. H. Anderson, Providence, R. I.—p. 689.
8 Bacterial Examination of Milk. F. H. Slack, Brookline.—p. 690.
9 Synoptic Report on Comparative Sanitary Survey of Two Massachusetts Cities. M. P. Horowitz, Cambridge.—p. 698.

American Review of Tuberculosis, B[al]timore

August, I, No. 6

10 *Diagnosis of Tuberculosis in Military Service. G. E. Bushnell, U. S. Army.—p. 325.
11 *Pleural Reaction to Inoculation with Tubercle Bacilli in Vaccinated and Normal Guinea-Pigs. R. C. Paterson, Saranac Lake, N. Y.—p. 353.
12 Public Health Work of Great Life Insurance Company. H. J. Howk, Mount McGregor, N. Y.—p. 372.

10. Tuberculosis in Military Service.—As a first principle Bushnell lays down the axiom that the examination must be confined to objective fact, to physical diagnosis. The examiner may listen to the applicant's story, but should not give weight to statements not supported by physical signs. It is frequently observed that the size of tuberculous foci is found at necropsy to be greater than that determined during life by clinical methods, there being recent extensions of the tuberculous process which have escaped detection. Now, if the numerous foci of miliary tuberculosis and the recent small foci surrounding an old lesion can not be discovered in their early stages, what, asks Bushnell, authorizes us to believe that it is possible to detect the incipient lesion of the apex by auscultation and percussion before râles have made their appearance? The physical examination for the presence of pulmonary tuberculosis as practiced by the specialist with a view to determine the precise extent, age and probable prognosis of the lesions, including as it should a careful record of past history and of all abnormal signs present, is a time consuming affair. For military purposes, however, in which the object is to reject from further consideration cases with well marked positive findings, much can be omitted from the examination and its duration can be correspondingly abbreviated. All that is absolutely necessary is to determine the presence of a tuberculous lesion of sufficient size and activity to constitute a cause for rejection. This can be done in well marked cases of active tuberculosis in a few minutes, in some cases in half a minute. To demonstrate the absence of disease naturally requires a longer time.

In order to determine the time requisite for a preliminary examination twenty-five test cases were examined by Bushnell by the auscultatory method aided by percussion, auscultation of voice, etc., whenever thought necessary, the object being to determine the least time which was necessary to get an approximation to the correct diagnosis. The time consumed for the whole examination was one and one-half hours. No special effort was made to shorten this time, which was spent to a considerable degree in consulting the case cards after the examination had been completed in the individual cases, in waiting for patients to remove their clothing, etc. The actual time of physical examination was fifty-eight minutes, the time for each patient varying from one and one-half to two and one-half minutes. The diagnosis, not only as to the presence or absence of tuberculosis but also as to the extent of the lesions present, was made correctly as determined by comparison with the cards in twenty-two cases; in two cases the presence of an old pleurisy in which there had been effusion at an earlier time was not recognized, and in one case a cavity was erroneously diagnosticated by carelessness in failing to notice that the patient was breathing noisily. The patients were as a rule afebrile. In most of them there were no signs of present activity; in one there was no evidence of clinical tuberculosis. They were, in short, such cases as might very well have been presented to the examiner of recruits. Bushnell believes that if all recruits were examined with no more care than was given to the examination above reported the number of patients treated at Fort Bayard would be reduced by at least one fourth and very probably by a much larger percentage.

The author describes in detail his method of making a rapid diagnosis by auscultation and concludes his paper by setting forth the following topical variations of normal signs: 1. Harsh breathing, slightly prolonged expiration over right apex posteriorly, without other signs, is not cause for rejection (proximity of bronchus). The same signs anteriorly over the right apex if slight are not necessarily pathologic. 2. The same signs second interspace right anteriorly close to sternum are not a cause for rejection (proximity of right main bronchus). If these signs are found outward and downward from this point they indicate a lesion. 3. Increased vocal resonance and slightly harsh breathing immediately below center of left clavicle are occasionally found. They do not indicate a lesion in the absence of other signs. 4. Fine crepitations over sternum or heard when stethoscope touches edge of that bone are not pathologic. 5. Clicks heard during strong breathing or after cough in the vicinity of the costosternal articulations (below the first) in the absence of other signs are not indicative of a lesion. 6. Sounds resembling râles at base of lung, especially in right axilla, are not pathologic if strictly limited to the base and to inspiration and not accompanied by other signs. 7. The same is true of sounds resembling râles over the lingula (heart apex) heard on cough. 8. Prolonged expiration at left base, posteriorly, limited to this region, is not abnormal. 9. Slightly prolonged expiration at about the angle of the scapula, disappearing a short distance above this point, is not a sign of a lesion, if alike on both sides (transmission from normal bronchi) and not accompanied by other signs.

11. Inoculation with Tubercle Bacilli.—In attempting to do some experimental work with pleural effusions, Paterson found that the pleural cavity of rabbits, inoculated with virulent tubercle bacilli after a pneumothorax had been established, did not respond to the inoculation with the development of fluid. It was further discovered that a second inoculation of bacilli into the same pleural cavity some weeks later resulted in a rapid accumulation of bloody serous exudate, rich in leukocytes. The problem was therefore suggested as to whether a sensitization of the pleura prior to inoculation was necessary for the development of an effusion and whether this sensitization might not be a part of a general change in reaction produced by an already existing tuberculosis. Hence Paterson endeavored to determine the differences in reaction, following the inoculation of virulent tubercle bacilli into the pleura of normal guinea-pigs and of those which have been previously vaccinated with bacilli of low virulence and as a result have developed a localized glandular tuberculosis and show a tuberculin sensitiveness.

These experiments showed that intrapleural inoculations of tubercle bacilli in tuberculous guinea-pigs result in an exudation of serum, leukocytes, red blood cells and fibrin. Similar inoculations in normal guinea-pigs elicited no noticeable pleural reaction. The acute pleural reaction in tuberculous animals tend to localize the infection which is rapidly disseminated in normal controls. The length of life after intrapleural inoculation is much greater in tuberculous than in normal guinea-pigs. The effusions are capable of causing tuberculosis in normal guinea-pigs although no bacilli can be found. Tubercle bacilli are probably absorbed through both

the parietal and visceral pleura. Fibrous adhesions are formed by the organization of the fibrin. Clinical pleural effusions are caused by the infection of an allergic pleura.

Arkansas Medical Society Journal, Little Rock

August, XIV, No. 3

13 Deductions from Three Hundred Surgical Cases. M. D. Ogden, Little Rock.—p. 51.
14 Urticaria. C. T. Drennen, Hot Springs.—p. 57.
15 Electrotherapeutics. J. K. Smith, Texarkana.—p. 59.

Boston Medical and Surgical Journal

August 23, CLXXVII, No. 8

16 Medical Profession and Social Progress. A. F. Downing, Cambridge.—p. 237.
17 Studies of Infant Feeding. Mineral Constituents (Ash) of Milk. A. W. Bosworth and H. I. Bowditch, Boston.—p. 248.
18 Basic Principles in Symptomatology of Bright's Disease. H. Elwyn, New York.—p. 251.
19 *Epidemic of Dysentery at Boston State Hospital, Due to Member of Paratyphoid Enteritidis Group. M. E. Morse and G. Tryon, Boston.—p. 255.

August 30, No. 9

20 The Hospital Follow-Up System. C. C. Simmons, Boston.—p. 275.
21 Uniformity in Hospital Morbidity Reports. E. A. Codman, Boston. —p. 279.
22 Standardization of Hospitals. J. G. Bowman, Chicago.—p. 283.
23 Efficiency Tests Applied to Attending and House Physicians of Cook County Hospital, Chicago. J. A. Capps, Chicago.—p. 286.
24 Significance of Persistent Pain or Other Symptoms Referred to Peripheral Nerves. H. W. Wright, San Francisco.—p. 287.
25 Treatment of Visceroptotic. R. F. Chase, Portland, Me.—p. 290.
26 Relations of Prenatal and Postnatal Work. M. M. Davis, Jr., Boston.—p. 294.

19. **Epidemic of Dysentery.**—Morse and Tryon describe an acute very contagious disease, of short incubation period, appearing in three forms: the dysentero-septicemic-pneumonic; the pure dysenteric, and diarrheal. The conditions found in the virulent fatal cases were a membrane ileocolitis, septicemia and a pneumonia with miliary abscesses and large areas of necrosis. The severer forms of the disease occur in debilitated persons. Immunity is of short duration, and recurrences (usually mild) are frequent. The causative organism is a member of the paratyphoid enteritidis group, more closely allied, as shown by agglutination tests, with paratyphoid B, *B. suipestifer* and *B. enteritidis* than paratyphoid A, but not identical with any of them. The disease was limited to certain buildings of the Boston State Hospital. The epidemic was preceded by mild diarrheas among patients and attendants, then broke out in violence in one ward, and was passed from person to person by contact. The source of the infection was not definitely determined. The close affinity of the organism with certain members of the group (suipestifer and enteritidis) which are associated with animals, suggests the possibility of such an origin. No evidence was obtained connecting the human epidemic with an outbreak of hog cholera which had prevailed in the piggery during the previous summer, but the pathologic anatomy of the two diseases presents certain features of similarity. The hypothesis is suggested that the infection was introduced by the contamination of food in the refrigerator by rats, the infection appearing first as mild cases of diarrhea, then as an outbreak in a single ward, due probably to gross contamination of the food by a human carrier, the difference in the severity of the disease depending on the physical condition of the persons attacked, and possibly also on the rapid transfer of the virus.

Prophylactic inoculation will not suppress the disease among feeble patients, although it may have some influence in mitigating its severity. Among strong persons, however, it appears to be of more value, in reducing both the number of cases and the type of the disease. Vaccine treatment during the disease has given good results. A polymorphonuclear hyperleukocytosis occurs after both the prophylactic and therapeutic administration of vaccine. The leukocytic reaction is more marked in the stronger normal individuals than in the feeble ones who have had the disease and recurrent attacks. Agglutinin formation in the disease is very moderate. Agglutinins for the organism persist in some cases as long as fourteen and seventeen months after the original attack, when there has been no recurrence. After prophylactic vaccination, low titers have been obtained up to eleven months. Intradermal tests with concentrated glycerin broth cultures of members of the paratyphoid enteritidis group have given unreliable and conflicting results. Tests with powdered cultures are to be undertaken.

Canadian Medical Association Journal, Toronto

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27 Past and Present. F. J. Shepherd, Montreal, Que.—p. 673.
28 Modern Conception of Public Health Administration and Its National Importance. C. J. Hastings, Toronto.—p. 684.
29 Study of Certain Psychogenetic Conditions Among Soldiers. C. K. Russel.—p. 704.
30 Cholecystectomy vs. Cholecystostomy (Technic and Complications); Treatment of Gastric and Duodenal Ulcer; Relationship of Thyroid to Exophthalmic Goiter. G. W. Crile, Cleveland.—p. 721.

Florida Medical Association Journal, Jacksonville

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31 Volkmann's Contracture. J. K. Simpson, Jacksonville.—p. 33.
32 Advantages of Proper Handling of Acute Appendicitis. E. Jelks, Jacksonville.—p. 37.
33 Indications and Abuse of Cesarean Section. F. J. Waas, Jacksonville.—p. 39.
34 Sigmoid. M. H. Smith, Jacksonville.—p. 43.
35 Factors in Union and Use of Traction Suture Plates in Abdominal Incisions. R. R. Kime, Lakeland.—p. 45.
36 Food Value and Wholesomeness of Self-Rising Flour. H. O. Snow, Tampa.—p. 48.

Georgia Medical Association Journal, Augusta

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37 Intensive Fattening; Some Results in Abdomen. W. W. Blackman, Atlanta.—p. 61.
38 Importance of Careful Examinations Before Advising Surgical Operations. E. C. Davis.—p. 65.
39 Review of Two Hundred Operations for Acute Abdomen, with Fifteen Deaths. R. M. Harbin and W. P. Harbin, Rome. —p. 67.
40 Traumatic Rupture of Viscera without External Wound. F. K. Boland, Emory University.—p. 74.

Indiana State Medical Association Journal, Fort Wayne

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41 Conservative Treatment of Penetrating Wounds of Eyeball. A. E. Bulson, Jr., Fort Wayne.—p. 307.
42 Leprosy in Indiana; Report of Case. S. L. Egart, Indianapolis. —p. 312.
43 First Aid Work of United States Bureau of Mines. A. F. Knoefel, Terre Haute.—p. 314.
44 Review of Prescription Work. C. N. Howard, Warsaw.—p. 317.

Journal-Lancet, Minneapolis

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45 *Uremia, Etiology, Types and Diagnosis. L. G. Rowntree, Minneapolis.—p. 491.
46 Certain Methods Used in Laboratory Investigation of Acidosis and Renal Function. J. M. Northington, Minneapolis.—p. 496.
47 Present Status of Acute Infections of Kidney. J. S. Gilfillan and W. A. Dennis, St. Paul.—p. 498.
48 Pituitary Extract. A. A. Conley, Cannon Falls.—p. 505.
49 Gastric Ulcer. J. C. Baker, Ramona, S. D.—p. 507.

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50 Fractures at Elbow. E. P. Quain, Bismarck, N. D.—p. 521.
51 Wire Filigree in Closure of Large Hernias. H. B. Sweetser, Minneapolis.—p. 530.
52 Neglected Surgery. R. S. Westaby, Madison, S. D.—p. 534.
53 *Acute Postoperative Obstruction and Paresis. E. H. Beckman, Rochester.—p. 535.
54 Medical and Surgical Nomenclature. F. W. MacManus, Williston, N. D.—p. 538.
55 If Your Son Is to Become Specialist in Practice of Medicine, How Shall He Secure His Training? F. C. Todd, Minneapolis.—p. 541.

45. **Uremia, Etiology, Types and Diagnosis.**—Rowntree says he has repeatedly seen acute exacerbations of uremia manifestations follow the administration of high protein diet in chronic nephritis, while, on the other hand, he has seen chronic uremia disappear on low protein diet. As a result of personal studies he is thoroughly convinced that acidosis is not responsible for uremia. The acidosis can be corrected without the disappearance of uremia, and death from uremia may still occur. Except in acute uremia he has yet to see anything but temporary relief from the correction of the acidosis. In the vast majority of cases the treatment adopted is based on

the theory of retention of products of metabolism. Indeed, he feels that it is wise to pursue this line of treatment in every case of uremia. When edema of the brain is present the question of mechanical relief of cerebral pressure may need to be considered. Lumbar puncture may be of the greatest value in cases with marked headache dependent on cerebrovascular changes. If acidosis coexists, alkali should be administered, but only to the point of correcting the acidosis, not indiscriminately in all cases of uremia nor in the large amounts recently advocated. In every case of uremia it is the physician's duty to determine if possible the underlying cause and to treat the case accordingly.

53. **Acute Postoperative Obstruction and Paresis.**—Occasionally, Beckman says, splendid results may be obtained with eserin or pituitary extract. On the other hand, it is often disappointing not to obtain the results expected. When all other results fail, an enterostomy at the lowest point of the distended intestine is often a life-saving measure, as in the case of a boy who had an acute attack of appendicitis. An unsuccessful search was made for the cecum through a small McBurney incision. This was closed, and a midline incision made. After considerable manipulation and packing off of the intestine it was found that the entire cecum had a very long mesentery and lay on the left side of the abdomen. The appendix, which was reddened but not ruptured, was removed, and the abdomen was closed without drainage. The patient had an apparently normal convalescence the first forty-eight hours. At the end of that time he appeared exhausted; the pulse rate began to increase; he vomited, and no result was obtained with enemas. The abdomen was flat, except possibly for a little distention in the epigastrium. Routine washing of the stomach every four hours was carried out. After the third day oil was given through the stomach tube, and at the next washing almost the entire amount was obtained. Condition unchanged.

There was no abdominal distention, no complaint of pain, and no temperature, but the pulse rate increased, and exhaustion increased in spite of salines given by bowel. On the fourth day at 5 p. m. the midline incision was reopened. The abdominal fluid had not increased, nor was there any evidence of inflammation in the abdomen. The jejunum was enormously distended from its beginning for a distance of about 4 feet. At this point, and without any evidence of adhesions, the distention ended abruptly, the remainder of the small intestine being entirely collapsed and contracted. An enterostomy was done at the lower point of the distended intestine, and a good sized rubber catheter introduced into the bowel. Almost no gas escaped through the catheter. During the first night 2 or 3 ounces of secretion came through the catheter. The next day this amount increased, and twenty-four hours after the second operation a small amount of gas was passed by the bowel. Vomiting ceased, and convalescence progressed from this time on. Beckman is convinced th.. this patient would have died if an enterostomy had not been performed.

Journal of Cancer Research, Baltimore

July, II, No. 3

56 *Alleged Increase of Cancer. W. F. Willcox, New York.—p. 267.
57 Tumors of Kidney in Rabbits. E. Scott, Cleveland.—p. 367.
58 *Distribution of Immune State in Mice. Second Communication on Homologous Immunity to Malignant Mouse Tumors. M. Tsurumi.—p. 373.
59 *Sulphur Metabolism in Carcinoma. M. Kahn, Pittsburgh.—p. 379.
60 *Traumatic Rhabdomyosarcoma Following Successive Fractures of Femur. H. R. Muller, New York.—p. 393.
61 *Comparative Pathology of Cancer of Stomach with Particular Reference to Primary Spontaneous Malignant Tumors of Alimentary Canal in Mice. M. Slye, H. F. Holmes and H. G. Wells, Chicago.—p. 401.
62 *Trauma and Primary Mouse Tumors. M. C. Marsh, Buffalo. —p. 427.
63 Tumor Immunity in Chick Embryo. H. N. Stevenson, New York. —p. 449.

56. **Alleged Increase of Cancer.**—The reported mortality from cancer is increasing in almost every part of the world from which reports exist, but Willcox's study shows that the real mortality, if it is increasing at all, is certainly not increasing with equal rapidity. In England and the United States the increase in cancer mortality is parallel with the increase in mortality from appendicitis and both may be due entirely, as they certainly are in large degree, to the improvement of diagnosis. The cumulative evidence that improvements in diagnosis and changes in age composition explain away more than half and perhaps all of the apparent increase in cancer mortality rebuts the presumption raised by the figures and makes it probable, although far from certain, that cancer mortality is not increasing.

58. **Distribution of Immune State in Mice.**—The immune state produced by Tsurumi in mice by a single subcutaneous inoculation of mouse embryoskin (0.05 c.c.) has been shown to extend to an internal organ—the lungs, and to the peritoneal cavity. In other words, resistance is not localized, but is distributed all over the body of immunized animals. This fact allows the assumption of the presence in immunized animals of some substance which is able to cause resistance and which is distributed throughout the body of such animals.

59. **Sulphur Metabolism in Carcinoma.**—In carcinoma there is generally observed an increase in the percentage of neutral sulphur in the urine. This may be ascribed to a lessened power of oxidation or to an increased destruction of tissue with the failure of the organism to oxidize the broken down products to the sulphate (oxidized) state. Kahn found that the colloidal nitrogenous substances are increased in the urine of cancer patients, as well as in the urine of anemic, diabetic and syphilitic individuals, etc. It has been the experience of the author that the determination of this fraction in conjunction with the Salomon-Saxl test for the so-called "neutral sulphur" is of great aid in the diagnosis of carcinoma if both of these tests are positive. A negative result with either the Salkowski-Kojo test or the Salomon-Saxl test detracts very much from the significance of the results so far as carcinoma is concerned.

60. **Traumatic Rhabdomyosarcoma.**—Clinically, Muller's case is of interest in that the tumor developed apparently in a femur which had twice been the seat of a fracture, and which later had been treated for periostitis. Pathologically it is noteworthy in that its morphology differs strikingly from that of a bone sarcoma, and that it must be regarded as a tumor arising in muscle tissue.

61. **Cancer of Stomach.**—A review of the literature made by the authors shows that in all animals except man, carcinoma of the stomach is extremely uncommon and the recorded cases found in the lower animals are here collected and discussed briefly. In animals with a rumen, or in which the cardia is lined by squamous epithelium, carcinoma of this tissue is observed much more frequently than in the glandular gastric mucosa. Only four cases of carcinoma of the stomach of mice could be found recorded in the literature, all in the squamous cardiac portion. In 16,500 necropsies on mice dying natural deaths at all ages in this laboratory, the authors have found three squamous cell carcinomas of the cardia, and one tubular pyloric carcinoma; the latter apparently resulted from the presence of a hair ball in the stomach. One gastric neoplasm, resembling closely a sarcoma, was also observed. Carcinoma of the intestine is also very rare in mice, the only case observed in the Slye stock being a squamous cell carcinoma arising in the external surface of a chronically prolapsed rectum. The significance of man's susceptibility to carcinoma of the stomach is not yet known, but probably it depends on the heat of his food or the condiments employed in seasoning it or on the chemical changes produced by cooking.

62. **Trauma and Primary Mouse Tumors.**—Investigations were begun by Marsh in the hope of finding a stimulus, injury, or irritation, which, when applied to the mammary gland of the mouse, would incite neoplastic proliferation and lead to the development of true tumors. The first trials aimed to open the skin, in imitation of the bites and other injuries to which mice are naturally liable, and through which the mites of the skin would, though probably involuntarily, find their way beneath the skin and thus be in a position to influence the mammary epithelium. Needle scratches and punctures were entirely negative. The skin in the mammary regions of thirty-three mice was slit in many places with a sharp scalpel

point. One tumor resulted after three months. The skin of eighty-two old females past the breeding age was punctured in many places with a jeweler's file, the rough surface of the file serving to scrape the edges of the wound and carry in scurf, parasites, and sometimes hairs. In three experiments, a total of six tumors in six mice resulted between the first and fifth months. Implants of skin with hair stubble proved negative, likewise injected skin scrapings and subcutaneous implants of living mites.

Injection of mites ground in salt solution into seven spontaneous tumor mice were made. Three of the seven mice developed each an additional tumor; two of these became recognizable fifteen days after injection, and one of them was in the field of the injection. The other mouse developed an additional tumor after four months, at a distance from the injection. Water injections through the nipples, subcutaneous injections of tap water, mammary injury and tap water injections were negative. Nine normal mice were fed with skin scrapings containing living and dead mites. All the mice died within forty-four days, and only one showed definite mammary reaction in the form of a few small adenomas. One had a small lung adenoma. Pressure injury to the mammary gland was negative. Injury after feeding with mouse skin was negative. Attempted air injections into the mammary alveoli in five normal breeding female mice were positive. One died after eighty-one days; it had had no tumor at the last examination, about one month before death. The other four all developed mammary growths between the third and sixth months after injection. Air injected subcutaneously, and mammary injury in presence of air were negative. Injury to the nipples showed that in eighteen virgin mice no tumors resulted, but ten females 13 months old, soon after their first and only parturition, were treated in the same way, save that nearly all the nipples in each mouse were pricked; half these mice had lost their young, while the others were nursing their litters. Six mice survived after five months, during which three have developed tumors between the sixth week and the third month, in the region of the pierced nipples.

More than 1,100 mice have been used in over sixty experiments in irritation and trauma, and in the main with negative results. These experiments as a whole might be summed up as tending strongly to exclude acarine parasites of the mouse from any concern with the origin of mouse tumors; as showing how extensive a series of acute injuries fails to inaugurate tumors; and in indicating a simple and definite form of trauma which seems to have a material effect in raising tumor incidence in old breeders. Incidentally one may further infer that the effective factor hidden in any mechanical procedure which appears to start tumors is a very subtle one, and that its isolation or identification is a very difficult task.

Journal of Pharmacology and Experimental Therapeutics, Baltimore

August, X, No. 2

64 Toxic Action of Opium Alkaloids Individually and in Combination with Each Other on Paramecia. D. I. Macht and H. G. Fisher, Baltimore.—p. 95.
65 *Toxicity of Phosphates in Relation to Blood Calcium and Tetany. C. Binger, Baltimore.—p. 105.
66 *Perfusion of Mammalian Medulla; Action of Ethyl Alcohol. D. R. Hooker, Baltimore.—p. 121.
67 *Experiments with Succinate and Its Hydroxy Derivatives on Isolated Frog Heart. W. Salant, A. E. Livingston and H. Connet, Washington, D. C.—p. 129.
68 *Endermic Reactions. Experiments on Local Urticaria. T. Sollmann, Cleveland.—p. 147.

65. **Toxicity of Phosphates.**—The results of Binger's studies show that solutions of orthophosphoric acid and its sodium salts, when injected intravenously in dogs, cause a diminution in the amount of calcium in the serum. The degree of diminution in calcium content or serum depends on the amount of phosphate introduced. When the phosphate solution is injected in amounts equivalent to 150 gm. phosphorus per kilogram, the serum calcium drops from its normal level of 10 mg. per 100 c.c. to approximately 6 mg. At this level a condition of tetany supervenes, provided the neutral or alkaline salts have been injected. With acid phosphate solutions, the calcium drop occurs unaccompanied by tetany. The region at which the phosphate solutions become toxic when injected in the doses here employed lies in the neighborhood of P 6.0.

66. **Perfusion of Mammalian Medulla.**—Perfusion of the medulla in the dog with defibrinated blood to which ethyl alcohol has been added to 0.025 per cent., stimulates respiration. If the amount of alcohol be increased to 0.1 per cent., the respiratory response is greater than with 0.025 per cent. alcohol. If the amount of alcohol be further increased to 0.2 per cent., a transitory stimulation occurs which is followed by a prolonged inhibition of respiration. Concomitant observations on the heart rate and arterial blood pressure indicate that the former is not affected while the latter is raised.

67. **Experiments with Succinate on Isolated Frog Heart.**—The chief conclusions drawn by the authors are as follows: sodium succinate and its hydroxy derivatives are cardiac depressants, but weak solutions of some of the isomers of the salts of tartaric acid may produce stimulation. The toxicity of the derivatives of succinate increases with the entrance of hydroxyl groups. Stimulating after effects were observed in experiments with tartrates. In experiments with repeated perfusions the depressing effects observed at first gradually diminished and stimulation was finally observed. The evidence obtained in this investigation contradicts the calcium precipitation theory advanced in explanation of the mode of action of tartrates and other organic salts whose calcium compounds are soluble with difficulty. The point of action of the salts is probably nervous in origin and not muscular. Simultaneous stimulation of inhibitory and motor mechanisms is suggested to explain the different and opposite effects produced by some of the compounds. The sodium salt of levotartaric acid was the most active of all the isomers of tartaric acid.

68. **Endermic Reactions.**—Sollmann's conclusions are as follows: Local urticarigenic agents do not sensitize the skin at a distance toward water. The local application of morphin to the scarified skin produces a distinct though limited analgesia. The severity of urticarial reaction does not decrease in strict proportion to the dilution. However, the difference of the urticarial reaction is sufficient to show the rapid deterioration of dilute histamin solutions. The combination of several weak urticarigenic agents does not produce marked potentiation. The morphin urticaria is not materially influenced by the local application of calcium or barium chlorid. Epinephrin and morphin are somewhat antagonistic in their vascular actions. Morphin may therefore remove the epinephrin blanching; but epinephrin cannot remove the morphin edema effectively. The fading of a drug urticaria is not due to rapidly acquired tolerance. Repeated applications do not increase the severity of the urticaria beyond a certain point; but this seems to be due to inherent limitations in the drug irritation. Excised human skin is not altered by the usual urticarigenic agents.

Medical Record, New York

August 25, XCII, No. 8

69 Treatment of Chronic Bright's Disease. J. M. Anders, Philadelphia.—p. 311.
70 Are There Subjective Pains? M. Solomon, Chicago.—p. 314.
71 Hospital Social Service in New York. N. G. Seymour, New York.—p. 320.
72 Should We Be More Conservative in Use of Artificial Pneumothorax? J. R. Williams, Asheville, N. C.—p. 323.
73 Care of Feet in Pregnancy. G. Gellhorn, St. Louis.—p. 326.
74 Case of Bothriocephalus Infection. C. G. McGaffin, Kings Park.—p. 327.
75 Massage and Exercises in After-Care of Poliomyelitis. F. Berg, New York.—p. 329.

Missouri State Medical Association Journal, St. Louis

August, XIV, No. 8

76 *Cystoscopic Examination of Bladder in Psychoses. F. M. Barnes, Jr., and J. R. Caulk, St. Louis.—p. 329.
77 Transplantation of Fat, Fascia and Living Tissue in Surgery; Report of Experiences in Various Conditions. A. B. Kanavel, Chicago.—p. 333.
78 Report on Medical Education. A. W. McAlester, Columbia.—p. 340.

79 Plea for Establishment of Standardized County General Hospitals. F. G. Nifong, Columbia.—p. 343.
80 Methods and Results of Educational Work in Control of Cancer. F. J. Taussig, St. Louis.—p. 347.
81 Nephritis and Endocarditis; Report of Case. O. H. Brown, Phoenix, Ariz.—p. 349.
82 Some of Secretary's Duties and His Part in Maintaining an Interesting County Society. J. F. Roberts, Bolivar.—p. 351.

76. **Examination of Bladder in Psychoses.**—In a second series of cases of psychoses examined by Barnes and Caulk the neurologic findings were such as to lead to the expectation of a positive bladder picture in 23 per cent., whereas this positive picture was found in 54 per cent. The authors emphasized the fact that the appreciation of this bladder picture bears an important surgical significance, as its recognition will often spare an unnecessary operation and lessened postoperative incontinence. They believe that the results of their work quite definitely indicate that the cystoscope has an important field in the differentiation of functional from organic diseases of the central nervous system.

New York Medical Journal

August 25, CVI, No. 8

83 Value of Roentgen Rays in Diagnosis of Carcinoma of Stomach. R. H. Boggs, Pittsburgh.—p. 341.
84 Case of Heredocerebellar Ataxia (?) Presenting Unique Features. F. X. Dercum, Philadelphia.—p. 346.
85 New Combination Observation, Catheterizing and Operating Cystoscope. L. Buerger, New York.—p. 347.
86 Cellular and Humoral Factors in Anaphylaxis and Immunity. W. H. Manwaring, A. R. Meinhard and Y. Kusama, Stanford University, Calif.—p. 348.
87 Diagnosis of Gastric Ulcer, Duodenal Ulcer and Gastric Cancer. A. Woldert, Tyler, Texas.—p. 349.
88 Clinical Neurologic Examinations. J. C. Keeler, Philadelphia.—p. 354.
89 Elements of Success in Treatment of Diabetes. J. Sañan, New York.—p. 357.
90 Local Anesthesia in Sixty Operations for Acute and Chronic Appendicitis. J. Wiener, New York.—p. 360.
91 Case of Acute Inflammatory Glaucoma Produced by Instillation of One Drop of One Per Cent. of Homatropin. M. J. Levitt, Brooklyn.—p. 362.
92 Medical Department of United States Army. W. W. Reno.—p. 363.
93 Some Medical Aspects of War. T. H. Goodwin.—p. 367.

Philippine Journal of Science, Manila

September, 1916, XI, Sec. B, No. 5

94 Congenital Bilateral Absence of Kidneys in A One Hundred and Forty-Millimeter Pig Embryo. A. Garcia, Manila.—p. 191.
95 *Poisoning by Illicium Religiosum Siebold. L. E. Guerrero, D. de la Paz and A. L. Guerrero, Manila.—p. 203.
96 Rinderpest in Swine with Experiments on Its Transmission from Cattle and Carabaos to Swine and Vice Versa. W. H. Boynton, Manila.—p. 215.

95. **Poisoning by Illicium Religiosum Siebold.**—Four cases of poisoning by illicium religiosum are reported by Guerrero and his associates. According to these cases the following symptoms may occur: foaming at the mouth, repeated vomiting, diarrhea, thirst, unconsciousness, clonic and tonic convulsions, cramps in the legs, cephalalgia, mental disturbances, insomnia, profuse sweating, oliguria or anuria, large, strong pulse, giving place to small rapid pulse, cold extremities, contracted or dilated pupils, paresis of the lower limbs and exhaustion. The vomitus may be streaked with blood. During the convulsions the pupils as a rule dilate, the eyeballs bulge, the head is retracted toward the back, the respiration stops, and the face is cyanotic. In severe or fatal cases of poisoning in man, repeated vomiting, diarrhea, clonic and tonic convulsions which appear in paroxysm, cramps in the legs, and retraction of the head appear to be the most conspicuous symptoms.

The rational treatment of poisoning by illicium religiosum will not be possible till the chemical and pharmacologic reactions of its poisonous principle are definitely established. If the poison was introduced per orem, as is usually the case, the stomach should be rapidly evacuated, either by the use of apomorphin or of the stomach tube. Apomorphin offers decided advantage over the other medicinal emetics, on account of its ready action and the facility with which it can be administered, and lastly because it will produce emesis without causing further irritation of the stomach. After the stomach is evacuated, demulcent drinks or emollients may be administered. In the authors' opinion liquid paraffin is the most preferable. It is not absorbable and is not changed by the digestive juices; hence its soothing effect will extend to the entire length of the alimentary tract. The efficacy of safe quantities of chloral hydrate against violent spinal convulsions is doubtful, since the action of such quantities on the spinal cord is little. The authors used this drug in one of their cases, but from experiments and the studies of Langaard, they believe that the best method of controlling the convulsions is by the careful inhalation of ether followed by the administration of chloral hydrate and sodium or potassium bromid; the bromids enhance the sedative effects of chloral hydrate. In the later stage of the poisoning, when paralytic symptoms predominate, these drugs are emphatically contraindicated. The treatment in this case is chiefly a struggle to keep up the working of the paralyzed respiratory center, the circulatory apparatus, and the organs of elimination.

Public Health Journal, Toronto

August, VIII, No. 8

97 Control of Venereal Diseases. G. Bates, Toronto.—p. 187.
98 Venereal Disease Campaign in New York City. L. Chargin, New York.—p. 190.
99 Church and Sanitation. G. G. Melvin, St. John, N. B.—p. 196.
100 Vital Statistics. J. Martin, Regina, Sask.—p. 203.

Southwest Journal of Medicine and Surgery, El Reno, Okla.

August, XXV, No. 8

101 Summer Diarrhea of Babies. A. T. Coley, Oklahoma City.—p. 185.
102 Acute Anterior Poliomyelitis. C. W. Garrison, Little Rock, Ark.—p. 191.
103 Plea for Uniform Technic in Wassermann Test. W. H. Bailey, Oklahoma City.—p. 197.
104 Fractures of Neck of Femur. M. E. Stout, Oklahoma City.—p. 201.
105 Calcareous Ovary. W. E. Dicken, Oklahoma City.—p. 205.

Texas State Journal of Medicine, Fort Worth

August, XIII, No. 4

106 *Blood Transfusion in Anemias. M. L. Graves, Galveston.—p. 137.
107 Roentgenotherapy of Skin Cancer. J. M. Martin, Dallas.—p. 141.
108 *Vomiting of Pregnancy; Cause and Treatment. C. R. Hannah, Dallas.—p. 145.
109 Why Quarantines Fail in Protection of Public Health. S. A. Woolsey, Austin.—p. 147.
110 Practical Application of Blood Grouping in Transfusion. W. F. Starley, Jr., Galveston.—p. 150.
111 Pasteurization of Corneal Ulcers. C. B. Williams, Mineral Wells.—p. 156.

106. **Blood Transfusion in Anemias.**—Graves' experience does not lead him to believe that blood transfusion in the present state of our knowledge may be regarded as a curative agent in pernicious anemia, notwithstanding the marked amelioration of symptoms, general improvement and even apparent remissions of the disease obtained by their employment.

108. **Treatment of Vomiting During Pregnancy.**—The following treatment is employed by Hannah: Insist on the patient taking her breakfast in bed and remaining there for one or two hours. Eat whatever she wants at any time during the day and even immediately after vomiting. Make a thorough vaginal examination. If she is normal, let her alone. Give large doses of sodium bicarbonate (1 dram to 8 ounces of water) six times daily.

FOREIGN

Titles marked with an asterisk (*) are abstracted below. Single case reports and trials of new drugs are usually omitted.

Medical Journal of Australia, Sydney

July 7, II, No. 1

1 Extracts from a General Practitioner's Notebook. C. Joyce.—p. 1.
2 *New Method of Operating for Retrodisplacements of the Uterus. H. W. Sweetnam.—p. 3.
3 Granuloma Pudendi. C. G. Thorp.—p. 4.
4 Strangulation of Cecum in Inguinal Hernia Sac, complicated by Acute Appendicitis in Infant Sixteen Months Old. H. Bullock.—p. 5.
5 Embryoma Testis. H. M. Moran.—p. 5.
6 Colitis Polyposa. P. E. W. Smith.—p. 6.
7 Wide Propagation of Heart Murmur. F. G. Griffiths.—p. 8.

2. **Operation for Retrodisplacement of Uterus.**—Sweetnam's operation is a modification of the original Alexander-Adams operation. The essential features of his operation are: (1) a transverse superficial suprapubic incision, and (2) a vertical midline entry of the abdomen, permitting the palpation and inspection of the pelvic organs, appendix, etc. The author claims that his method is superior to the Alexander-Adams operation because it permits of a thorough inspection of the pelvis so that any pathologic condition may be detected; the exact position in which the uterus is placed can be determined both by sight and touch; it greatly lessens the contraindications to the Alexander principle of dealing with a retrodisplaced uterus, and the uterine condition and a diseased appendix can be dealt with through the one incision, while still preserving the Alexander principle of treating the displacement.

Practitioner, London

August, XCIX, No. 2

8 *Transverse Colostomy. P. L. Mummery.—p. 101.
9 Some Hints on the Tonsil Adenoid Operation Based on an Experience of 5,000 Cases. D. McKenzie.—p. 109.
10 *Contributory Causes of Cancer of the Throat. W. S. Low.—p. 122.
11 *Reduction of Blood Pressure by Nasal Cauterization. A. Francis.—p. 129.
12 Acute Glaucoma or Iritis? G. F. C. Wallis.—p. 137.
13 Some Cases of Acute Surgical Abdominal Disease Presenting Special Features. C. Bennett.—p. 145.
14 Plea for Caution in Surgery of Suspected Renal and Ureteric Calculus. G. Taylor.—p. 151.
15 Balneologic Treatment of Angina Pectoris. L. T. Thorne.—p. 155.
16 *Obesity and Its Vicious Circles. J. B. Hurry.—p. 164.
17 *Case of Bilateral Suprarenal Hemorrhage. J. Eadie.—p. 183.
18 Case of Bilateral Ossification in Brachialis Tendons. N. A. Sprott.—p. 188.

8. **Transverse Colostomy.**—Mummery calls attention to the fact that transverse colostomy, while offering certain advantages over sigmoid colostomy, should not be made a routine operation, but each case should be decided on its merits. This operation appears to afford better control over the stools than does sigmoid colostomy, and prolapse is much less common. In performing transverse colostomy, the colon should not be opened at the most dependent part, but as near the splenic flexure as is possible without causing tension. When the transverse colon is short, sigmoid colostomy should be preferred. The colon should subsequently be cut in half to arrest the peristaltic wave at the opening.

10. **Cancer of the Throat.**—One of the results of syphilis, in Low's opinion, is a predisposition, in association with other conditions, to cancer. In twelve cases of cancer of the throat, now under observation, syphilis had been contracted in earlier years. One of the most constant conditions present in all cases is sepsis of the throat from the presence of carious teeth, pyorrhea alveolaris or septic gingivitis. The normal reaction of the mouth fluids is alkaline, but in the presence of these septic conditions it is acid. The increased irritating effects of such acid fluids on the mucous covering of the throat is considerable, and may well prove a contributory factor to cancer of the throat. Nearly 96 per cent. of the cases investigated by Low have occurred in men, and in nearly every instance the patient has used tobacco to excess. Another pernicious influence noted was the baneful but common one of consuming very hot food, and all the cases investigated were found to be people who believed in the free use of common table salt. Salt increases the acidity of the alimentary tract and so causes irritation. Any form of nasal obstruction that leads to oral respiration, and one of the commonest is displacement of or irregularities in the nasal septum, is followed by chronic dryness of the mucous membrane of the throat. In the majority of cases of throat cancer well marked nasal obstruction has been found present.

11. **Reduction of Blood Pressure by Nasal Cauterization.**—Francis raises the blood pressure by touching different spots in the nose. In cases of abnormally high pressure he has gotten a lowering initially of 20 mm. of mercury; although the pressure tends to rise again it never reaches its original height, and by persevering with the treatment an ultimate reduction of from 20 to 40 mm. usually can be obtained. Raising the blood pressure is a less certain result than its reduction. The effect is produced by acting on the sympathetic fibers in the mucous membrane, probably by inhibiting vasoconstrictor action. In a fair percentage of cases the results are lasting. Good results have been obtained in cases of asthma. Cauterizing the inferior turbinates has little or no effect on the blood pressure. There is a spot on the lower edge of the middle turbinate which will sometimes raise the pressure. Within certain limits, the higher on the septum one touches, the greater is the effect in reducing the pressure. Below the mid-horizontal line there is very little reduction.

16. **Obesity and Its Vicious Circles.**—The numerous vicious circles associated with obesity have been studied by Hurry. The respiratory circles may be combated by measures for promoting the cardiac, pulmonary and diaphragmatic efficiency. Breathing exercises are of value, since they increase blood oxygenation and thus promote fat absorption. The dyspeptic circle can be broken with a little self-denial and self-control. A diet rich in cellulose, such as cabbages, celery, spinach, etc., may be prescribed to stay the pangs of hunger. Laxative mineral waters diminish the absorption of food from the intestine. When the cardiovascular or respiratory systems are involved, the Bergonié system of passive electrotherapy is recommended by Hurry. Massage is also of value.

17. **Case of Bilateral Suprarenal Hemorrhage.**—A boy, five years of age, said to be suffering from pneumonia and abdominal pain, was referred to Eadie. Except for persistent enuresis the boy had always been perfectly well. When Eadie saw him, he was lying on his back in a somewhat apathetic state, without retraction of the head. His face was of a dusky mottled pallor; eyes closed; lips scaly and dry; tongue dry; every appearance of miliary tuberculosis or typhoid. Pulse, 96; temperature, normal; respiration not distressed. Urine, normal; abdomen, normal in every way; rectal examination, negative. Eye fundi normal. There was a remarkable disparity between the great prostration of the patient and the pulse, temperature and respiration. Nothing being found to account for the condition, an exploratory laparotomy was performed, apparently justified by periodic attacks of acute spasmodic pain referred to the upper abdomen, causing acute flexion of the thighs and ushered in by the *cri cerebral*. These attacks were accompanied by increased pulse rate. The patient did not indicate the locality of the pain, but his movements showed that it was in the upper abdomen. The spasm appeared to be very acute, and recurred about every ten or fifteen minutes. A careful search was made of the entire abdominal cavity but nothing was found that could be taken as a cause for the attacks. Death occurred thirteen hours after operation. Just before death, the boy twice vomited the watery contents of his stomach in forcible spurts. The rectal salines also were squirted with force out of the anus. At the necropsy, when the liver was turned up, a dark red hemorrhagic stain was observed close to the portal vein and extending toward the right suprarenal body. On removing the fat covering, the latter organ was found to look like a dark red clot. The left suprarenal body presented an appearance identical with a blood clot, but the staining had not penetrated through the surrounding fat. The left lung presented at its base a dark red, fleshy patch. A piece of this thrown into water floated. No other lesion was found elsewhere, not even the sexual peculiarities attributed by some to disease of the suprarenal bodies.

Journal of Pathology and Bacteriology, Cambridge

April, XXI, No. 2

19 *Incidence of Bovine Infection of Tuberculosis in Man. C. K. Wang.—p. 131.
20 *Typhus Fever: Experiment with Vaccination with a Coccus Derived from Human Cases. M. Robertson.—p. 173.
21 Colloidal Nature of Wassermann Reaction. R. M. Walker.—p. 184.
22 Influence of Temperature on Fixation of Complement. H. R. Dean.—p. 193.
23 *Pathology of Worm Infection of Vermiform Appendix. Y. Matsuoka.—p. 221.
24 *Primary Tuberculosis of Faucial Tonsils in Children. A. P. Mitchell.—p. 248.
25 *Preparation of Solid and Liquid Media for Cultivation of Gonococcus. W. S. Cole and D. J. Lloyd.—p. 267.

19. **Incidence of Bovine Tuberculosis in Man.**—A bacteriologic investigation into 123 strains of tubercle bacilli obtained from 88 cases of tuberculosis in man was made by Wang. All the strains isolated were found to conform, in important respects, to either the human or the bovine type of tubercle bacillus. In no instance was an atypical strain conclusively demonstrated. Out of 68 cases of adults, bovine tubercle bacilli were separated in seven instances, namely, one from 29 sputum cases, two from 4 cases of abdominal tuberculosis, two from 7 cases of generalized tuberculosis, and two from 28 cases in which the only signs of tuberculosis were the calcareous or caseous lesions. Three of these bovine cases gave indication, on postmortem evidence, that the path of the infection was by way of the intestine. Out of 20 cases of children, the bovine type of bacillus was isolated in eleven instances. These were furnished by three out of 4 abdominal cases, three of 5 cases of generalized tuberculosis, three of 5 cases of tuberculous meningitis, and two of 8 cases with only calcareous or caseous lesions. In nine of these bovine cases the primary site of infection was in the intestine. The calcareous or caseous glands or nodules of twenty-eight adults and eight children were studied by Wang. From five of the former and two of the latter, the material conveyed tuberculous infection to the guinea-pig.

20. **Vaccination in Typhus.**—In July, 1914, Penfold isolated a coccus from the blood and from the urine of two patients during the acute stage of the disease, and the same coccus from the urine of a convalescent. Robertson undertook to test the connection of the organism with the disease and investigated the antigenic properties of the coccus as an immunizing agent against typhus. He isolated the coccus from the blood of two cases occurring in 1916, but found that monkeys vaccinated with this coccus had acquired no immunity against a subsequent intraperitoneal inoculation of blood from a typhus patient. No evidence was obtained of a causal connection between the coccus found in the blood and the clinical condition known as typhus fever.

23. **Worm Infection of Appendix.**—Matsuoka examined 103 appendices removed by operation. Worms or their eggs were found in 48; oxyuris in 29, tricocephalus in 2. The oxyuris was found in 9 per cent. of recently inflamed appendices and in 37 per cent. of 70 normal or slightly inflamed appendices. Eggs were seldom seen in inflamed appendices which contained worms. Worms were only exceptionally present in recent recurrent appendicitis, but when this was the case they were found in great numbers. Inflammation never occurred when the worm was in the mucosa. Worms were, therefore, neither directly nor indirectly the cause of acute or of old appendicitis.

24. **Primary Tuberculosis of Faucial Tonsils**—Mitchell examined the tonsils removed from 100 children and 6 adults. The tonsils were removed either prior or subsequent to the operation for excision of tuberculous cervical glands. Forty-one cases showed undoubted tuberculous lesions in the tonsils; three of these were adults. Of 100 cases of hypertrophied tonsils removed, nine gave histologic evidence of tuberculous disease. In 92 of the 106 cases the inoculation test was employed. Positive results were obtained in 20 cases, the bovine bacillus being present in 16 and the human bacillus in 4 cases. Of the second group of 100 cases, nine yielded positive results on inoculation; the bovine bacillus was present in four cases, the human bacillus in two cases; undetermined in three cases owing to contamination of the cultures. Mitchell concludes that tuberculosis of the deep cervical glands develops from a primary focus in the faucial tonsil much more frequently than is generally supposed. Hypertrophied tonsils more rarely are the seat of tuberculosis. Tonsillectomy is, therefore, essential in all cases of tuberculous cervical adenitis in children. The author also advocates sterilization of milk by boiling for the artificial feeding of children.

25. **Cultivation of Gonococcus.**—The preparation of sterilizable, translucent agar media for the cultivation of the gonococcus and of broths for rapidly testing fermentation reactions is described by Cole and Lloyd. It is suggested that the fermentation reactions of all suspected organisms in glucose, maltose and sucrose should be tested. The authors claim that the important factors necessary for the artificial propagation of the gonococcus are a suitable hydrogen-ion concentration, a high concentration of free amino-acids and the presence of certain special "growth hormones." The technic of retaining these growth hormones in solution after heat coagulation of blood and tissues is described. The effect of variations in hydrogen-ion concentration on viability is discussed, and it is suggested that too high a concentration inhibits initial growth, whereas too low a concentration favors subsequent autolysis.

Bulletin de l'Académie de Médecine, Paris

July 24, LXXVIII, No. 29, pp. 25-88

26 *Normal Parasitism and Microbiosis. V. Galippe.—p. 30.
27 Availability of Other Cereals to Take the Place of Wheat Bread. (Les succédanés du froment devant l'hygiène alimentaire.) E. Maurel.—p. 77.
28 *Antitetanus Serum in Prevention. A. Cheret.—p. 81.
29 Dermo-Epidermic Grafts in Repair of War Wounds. F. Debat. —p. 82. See Abstract 35 below.

26. **Normal Parasitism and Microbiosis.**—Galippe describes experiments with fruits and animal tissues which confirm the assumption of the existence of various parasites in the normal tissues of the vegetable and animal kingdom. But besides this more or less accidental normal parasitism, he says, there is another order of facts, more general, more constant, and dominating to a certain extent the life of the tissues, namely, the presence in the cell itself of living elements, elements indispensable to its functional activity. He accepts Béchamp's term of microzymas for them, and calls the manifestations of the biologic activity of these intracellular elements, microbiosis. These infinitely minute elements may survive the destruction of the cell, and then may acquire forms and biologic properties which they previously did not possess. They may functionate in a kind of autonomous manner, anarchistic, and may adapt themselves to the new conditions in which they find themselves and continue their evolution. The normal parasitism and the microbiosis may continue their evolution parallel or independently of each other. In his experiments with apples, etc., he relates that he was able to induce the appearance of micro-organisms from the microbiosis while excluding those from normal parasitism. The methods by which he realized this included mechanical trauma, contusions, etc., and he thus was able to trace certain manifestations of intracellular life and observe the appearance and evolution of certain living elements and cultivate them farther. These facts of general biology are applicable to all tissues, he says, all cells, whatever their origin. The most striking example is in war wounds. The crushed tissues in the wounds favor the development of the phenomena due to microbiosis. The danger from leaving these contused tissues in the wounds is recognized now by all surgeons, and the surgical cleansing out of the wound is now the routine practice. But the surgeons do this because they know these crushed tissues form the best culture medium for germs brought into the wound with the projectile. What they do not know, and what Galippe devotes the fifty pages of this monograph to prove, is that on account of the normal parasitism and the microbiosis, the part played by the crushed tissues and the extravasated blood is at the same time more important and more decisive. They may give birth directly and without foreign collaboration to infectious elements, so that an absolutely aseptic projectile is capable of infecting a wound solely by its mechanical action in starting the abnormal evolution of the living intracellular elements already present. The research was done in Landouzy's laboratory, and the data presented corroborate the lessons already learned from clinical observation.

28. **Preventive Antitetanus Serum.**—Cheret relates a number of examples to show the remarkable protection conferred on flocks of sheep and other domestic animals by preventive injection of antitetanus serum when tetanus was prevailing among them. Sheep are almost as susceptible to tetanus as the horse, but the preventive injection seemed to render them absolutely immune.

Presse Médicale, Paris

July 19, XXV, No. 40, pp. 409-416

30 Transfusion of Citrated Blood. E. Hédon.—p. 409.
31 *Slip Noose Deep Sutures. (Sutures profondes, amovibles aux crins de Florence par le procédé du nœud coulant.) H. Chaput. —p. 410.
32 *Causes of Error with the Wassermann Test. H. Telmon.—p. 411.
33 Present Status of Administration of Chloroform. G. Lyon.—p. 412.

July 23, No. 41, pp. 417-432

34 *Symptoms with Tumor of Third Ventricle. H. Claude and J. Lhermitte.—p. 417.
35 *Seedling Grafts for Repair of the Skin. (Semis dermo-épidermiques.) P. Alglave.—p. 419.
36 *Abdominal Hysterectomy for Cancer. F. Jayle.—p. 420.
37 Epidemic of Bacillary Dysentery in the Somme Region. G. Loygue and J. Haguenau.—p. 421.
38 The Babinski Toe Sign. E. Landau.—p. 424.
39 *Alcohol Soap. (l'alcool solidifié.) T. Nogier.—p. 426.

31. **Slip Noose Suture of the Abdominal Wall.**—Chaput says that this method of suturing the deep layers of the abdominal wall has no tendency to induce stitch hole abscesses while it holds the parts firm and immovable as long as is deemed necessary, and then the silk can be withdrawn. The coaptation is better than with wire in the obese; there is no pain when the silk is removed, and the method permits the outer layers of sutures to be undone, in case of trouble, while the deep layers are left unmolested. He pulls through the silk worm gut, holding it in the middle, and passes the two ends through the loop thus formed. Before drawing the loop tight he passes another silk thread through it, tying the ends of this thread and bringing the ends out separately. The slip noose is then drawn tight and the ends are drawn out separately through incisions 1 cm. apart and about 2 or 3 cm. from the edge of the wound. They are tied together and thus hold the noose in the depths very tight and firm, while the wound, sutured separately, can be opened and inspected without disturbing the noose ends. He has found this technic particularly advantageous in laparotomies, herniotomies and for suture of the patella. It takes less time than other methods of suturing, while there is no danger of its being absorbed as too often happens prematurely with catgut.

32. **Causes of Error with the Wassermann Reaction.**—Telmon discusses why the serum may give variable reactions on different days when the conditions otherwise seem to be the same. He ascribes it to the fact that freshly drawn serum may contain an excess of complement which modifies the reaction. To ensure accuracy, this excess of complement should be removed by setting the serum aside at 38 C. for a certain period. He estimates the amount of complement present by the number of minutes required for complete hemolysis when a mixture of 0.1 c.c. of the blood serum and 0.4 c.c. of salt solution—after having been incubated at 38 C. for an hour and a half—is added to 0.1 c.c. of a 6 per cent. solution of rabbit blood corpuscles, and the tube is replaced in the incubator. If the serum hemolyzes in less than five minutes, it is too rich in complement, and it is set aside for a new test twelve or twenty-four hours later. When the hemolysis occurs in seven minutes as the minimum, it is regarded as exactly proper for the Wassermann test. If the procedure has to be hastened, the "ripening" of the serum can be hastened by keeping it at 38 C. for ten or twelve hours. If the complement proportion drops too low, it can be brought up again by addition of a little fresh serum kept unheated for the purpose. By this means the Wassermann reaction can be hastened with no impairment of its precision. This slow inactivation at a comparatively low temperature thus has all the advantages of both the unheated serum technic and the technic with which the serum is heated for thirty minutes to 56 C., while it seems to be free from their sources of error, and respects the fragile specific amboceptors in the serum.

34. **The Infundibular Syndrome.**—Claude and Lhermitte had opportunity to study over a long period, with the necropsy findings, a case of tumor back of the chiasm, pushing apart the peduncles while the pituitary body and the sella turcica seemed to be normal. The cystic tumor had developed at the expense of the lining of the third ventricle, and the set of symptoms induced by this lesion included disturbances in vision, in articulation of words, and in the character, as well as disturbances in the circulation, in the sleep function and in the regulation of water distribution, polyuria and polydipsia. The clinical syndrome thus confirms the findings with experimental lesions in the ventral region of the third ventricle.

35. **Grafting Method for Repair of Skin Defects.**—Alglave has been using since 1901 a method of "dermo-epidermic seeding," as he calls it, which has given extremely satisfactory results for burns and lacerations in peace and has proved equally useful for repair after war wounds. When other methods have failed and the torpid surface seems to refuse to heal over, this method almost invariably answers the purpose. He hollows out with a curet a cup-shaped hole in the granulations, each hole about 8 or 10 mm. in diameter, and extending down to the aponeurosis or muscle plane of the wound. In this hole he plants a corresponding graft taken from the patient's thigh, including the epidermis and derma but not the entire thickness of the derma. The graft is only 6 or 8 mm. in diameter, and is not quite so thick as the hole is deep. Consequently the graft fits loosely in the hole, and the blood already in the hole clots around it and fastens it in place and also nourishes it. As the graft fits low down in the hole, the edges of the hole extend above it, enough to protect it against friction from dressings and clothing. A number of these holes are scattered over the surface to be grafted, at intervals of 1.5 cm. These dimensions and intervals have proved the best conditions for healing of the grafts in his extensive experience. In a case of which an illustrated description is given, twelve grafts were applied by this "drill husbandry technic," and the patient was up and about, entirely healed, in three weeks. His war wound had shown no tendency to heal during the six months preceding. Alglave ascribes great importance to the use of oiled tarletan, "taffeta chiffon" which does not stick to the tissues, and can be renewed daily. He washes the surface of the skin with boiled water at each change of dressings, letting the water drop gently on the grafts to rinse off the oozing around the grafts. The grafts do better when taken from the patient himself. One instance is related in which the young mother gave the grafts for the child of 4 and they did not retain their vitality. Two trials failed, and then the grafts were taken from the child, himself, and healing was soon complete. Another case teaches the familiar lesson that when the consequences of an operation or any procedure are different from what we have a reason to expect, we must seek for some disturbing general cause, which in this case, as often occurs, proved to be unsuspected syphilis.

36. **American Surgeons and Abdominal Hysterectomy.**—Jayle seeks to restore to America the priority for the extensive removal with the cancerous uterus of the broad ligaments and the iliac glands. He cites the communication by Ries of Chicago on the subject, March 18, 1895, and Clark's report, April 26, 1895, of two patients successfully operated on by an even more radical method. It was not until three years later that Wertheim performed his first operation of the kind. He says that Wertheim is not even mentioned in Cullen's great work, "Cancer of the Uterus," as Wertheim's first important report on the subject had not appeared when the book was written, 1899-1900. Jayle remarks that there is only advantage in copying good things and in popularizing them, provided one renders unto Caesar that which is Caesar's. The Wertheim operation should be called Clark's operation. The Trendelenburg position was described and illustrated by Rolandus in the twelfth and by Scultet in the seventeenth centuries, and Hirschsprung's disease by Ruysch in the seventeenth century. . . . "Those who like to call their operations by a proper name can speak of doing a Clark and the uterus will only have to behave itself to be free from all danger of being clarked."

39. **Solidified Alcohol.**—Nogier expatiates on the many advantages of the alcohol soap which is proving so useful in the trenches. It lights when touched with a match, and it combines the action of both alcohol and soap in cleansing hands and the field of operation. It is prepared by adding 150 gm. of dry and finely scraped Castile soap to 500 c.c.

lamp alcohol and adding 12 gm. of shellac and shaking well, then heating in a water bath, and pouring the clear fluid into molds to harden.

Progrès Médical, Paris

July 21, XXXII, No. 29, pp. 241-248

40 *Suprarenal Dyspepsia. Loeper, Beuzard and Wagner.—p. 241.
41 *Butyric Dyspepsia. Mucous Gastritis and Pylorospasm in Young Infants. F. Chevrel.—p. 242.
42 Old Mistakes in Regard to Physical Training of Soldiers. B. du Coteau.—p. 244.
43 The Psychology Just Before "Going Over the Top." (L'anxiété précédant l'assaut.) L. Huot and P. Voivenel.—p. 245.

40. **Suprarenal Dyspepsia.**—Loeper and his co-workers comment on the gastro-intestinal disturbances which form part of the clinical picture of Addison's disease, and state that similar digestive disturbances are frequently encountered now in the soldiers suffering from the strain of the war or convalescing from disease or infections or wounds. There is nothing characteristic about the digestive disturbances of these "incomplete suprarenal states," as they call them, and we have no clinical means of detecting this relative insufficiency on the part of the suprarenals. But we can turn the searchlight on it by watching the effect of small doses of epinephrin. They have made a practice for several months of administering to their patients with dyspeptic disturbances and obstinate constipation, small daily injections of from 0.1 to 1 mg. of epinephrin. Some were not affected by it in the least, but others were transformed by it. By the third injection the digestive discomfort disappeared, the stools became regular and assimilation more perfect, so that the men soon increased in weight. Along with this the blood pressure rose, the asthenia subsided and in one man with much pigmentation this also cleared up as the intestinal phenomena improved. The improvement under the epinephrin was in striking contrast to the lack of benefit from the usual measures applied to combat the dyspepsia. They explain the benefit by the tonic action of epinephrin on the nervous system, especially the sympathetic system, thus enabling it to modify some of the nervous reactions in the abdomen. An excess as well as a deficit of epinephrin may generate abdominal trouble. We know that epinephrin acts on the smooth muscle fibers of the vessels and bronchi, and probably the smooth muscle fibers of the stomach and bowel do not escape this influence. Insufficiency of the suprarenals may influence the secretory activity of other abdominal glands, and the study of these suprarenal dyspeptics seems to confirm this assumption. The difference between the gastric acidity after a test meal without and repeated with a preceding injection of epinephrin shows an appreciable rise in the acidity under the influence of the epinephrin. Radioscopy also shows a marked regulating influence from epinephrin on the motor functioning of the stomach and bowel. In six of the men in question the bismuth had scarcely reached the transverse colon by the seventh hour, but after a dose of epinephrin it was found in the rectum by the seventh hour, testifying to the acceleration of the passage of the bowel contents.

41. **Mucous Gastritis in Infants.**—Chevrel reports the case of an infant that had vomited incessantly for three months after an attempt at breast feeding, and spasm of the pylorus seemed unmistakable. The child cried after each feeding but seemed to be relieved by the inevitable vomiting. It was much emaciated but the stomach did not seem to be dilated, and no antiperistaltic movements could be detected. Chevrel put the child on a dry diet, giving fresh cheese, "small Swiss cheese," mixed with sweetened milk and occasionally alternated with "legume bouillon." The cheese was retained but the fluids were vomited. After various trials, the diet settled down to a teaspoonful of cheese alternating every two hours with 30 gm. of skimmed milk, and the stomach was rinsed out three times a day to cleanse it of the large quantities of mucus secreted. After a week or two a single lavage a day was sufficient and the child was soon restored to clinically normal conditions. In nearly all such cases, there has been an excess of fat in the infant's food; in the present case the infant had a decided butyric odor. The thick and tenacious mucus may possibly have plugged the opening to the pylorus; in any event it hampered the digestive processes.

Correspondenz-Blatt für Schweizer Aerzte, Basel

July 21, XLVII, No. 29, pp. 913-960

44 *Active Versus Conservative Treatment of Abortion. B. Engler.—p. 913.
45 Importance of the Skin Reaction After Inoculation with Tuberculin as a Guide to Treatment and Prophylaxis. E. Lanz. p. 920.
46 Metal-Albumin Preparation for Diagnosis of Pregnancy. (Sorcyme.) K. Kottmann and F. Thönen.—p. 939.
47 Rare Scalp Diseases. L. Merian.—p. 944.
48 Production of Alcohol from Calcium Carbid. Fleissig.—p. 948.
49 Appendicectomy Through the Hernial Opening in Operating on a Right Inguinal Hernia. M. Schoenbrunn.—p. 950.

44. **Active or Conservative Treatment of Abortion.**—Engler remarks that opinions still differ widely as to whether active or conservative measures are preferable, but at the Strassburg clinic, in charge of Fehling, active treatment is the usual course. A very important guide for the management of the case is what she calls "latent complications," namely, that while nothing pathologic can be palpated, yet the patients complain of pains during internal examination. Tenderness of the vaginal portion of the uterus or tissues around indicates incipient inflammation, showing that the morbid process is not restricted to the endometrium but is extending beyond it. This calls for strict conservative treatment, just as much as exudation in the pouch of Douglas or disease of tube or ovary. In a recent series of 170 abortion cases, these "latent complications" were evident in ten cases; in five all disturbances had subsided in two or three weeks, but four required surgical measures, incision of an abscess in the pouch of Douglas or drainage for peritonitis or removal of an ovarian tumor. The peritonitis was too far advanced for recovery in one case, the only death in the whole series. In all this group the abortion had been induced by intra-uterine injection of soapsuds or wood vinegar. The other 160 women were treated by clearing out the uterus with the curet or the finger. The curet is preferred as it can be introduced with the cervix less widely dilated, the uterus can be cleared out more completely, and general anesthesia is not required; a dose of some sedative fifteen minutes beforehand is enough. The bacteriologic findings were not heeded. In 33 per cent. of the sixty febrile cases the bacteriologic findings were negative, while the women with hemolytic streptococci had a smooth recovery. Of the 100 nonfebrile cases only one developed slight and transient fever, the others rapidly recovered. It is practically the rule at the clinic to curet in the afebrile cases, as this hastens convalescence and possibly wards off trouble later. As the maneuvers to induce the abortion have already injured the ovum, its expulsion is not to be prevented, even although days or weeks may elapse before it is consummated. Hence it seems wiser to empty the uterus without delay after severe hemorrhage or expulsion of large clots. At this early stage the curetting does no harm comparatively speaking; in the series of 100 afebrile cases reported the morbidity and mortality were both zero. In the sixty febrile cases all recovered after a moderately severe course except 3.3 per cent. who presented serious symptoms for a time. The average stay in the hospital was seven days but it was only five or six in the afebrile cases.

Gazzetta degli Ospedali e delle Cliniche, Milan

June 21, XXXVIII, No. 49, pp. 713-720

50 *Toxic Meningism. Andruetto.—p. 713.
51 Municipalization of Charity Medical Work in Milan. E. Villa.—p. 719.

June 24, No. 50, pp. 721-736

52 Treatment of Infected Wounds of the Knees. A. Franchini.—p. 723.

50. **Toxic Meningism.**—Andruetto reviews the literature on the subject of meningeal symptoms during typhoid and other diseases when the cerebrospinal fluid was found constantly sterile, also the meningeal symptoms with lead poisoning and uremia. He then reports in detail a case of meningism for which uremia was undoubtedly responsible, the fluid and blood being found constantly sterile. The man had convulsions, and epidemic meningitis was known in the locality but the cerebrospinal fluid persisted sterile and limpid. The urine on the other hand contained many casts and much albumin, and the meningeal symptoms rapidly improved

under treatment for nephritis, venesection and infusion of saline. The lumbar punctures gave great relief, the headache and other symptoms from pressure on the brain showing prompt benefit.

Policlinico, Rome

July 29, XXIV, No. 31, pp. 949-976

53 *Jaundice Spirochetosis. U. Carpi.—p. 949. G. Bompiani and A. Iovene.—p. 955.
54 *Spirochetes in Rats. G. Monti.—p. 962.

July, Surgical Section No. 7, pp. 273-312

55 Varieties of Femoral Hernia. G. Serafini.—p. 272. Commenced in No. 5, p. 280.
56 *Changes in the Sweat Glands with Insufficiency of the Kidneys. I. Montalbo.—p. 284.
57 *Pain and Swelling of the Tuberosity of the Tibia. (Malattia di Schlatter e Osgood.) C. Lollini.—p. 298.
58 Surgical Treatment of Wounds of the Brachial Plexus. S. P. Allegra.—p. 303.
59 Technic for Amputations. G. Lerda.—p. 310. To be continued.

53. **Spirochete Jaundice.**—Carpi reviews his experiences with a recent series of 300 cases of icterogenous spirochetosis. He calls attention in particular to the long incubation, usually from fifteen to twenty days but sometimes from twenty-five to thirty. The glands in the groin and axillae were swollen but not tender, and the blood showed polynuclear leukocytosis, which aided in differentiating it from the leukopeny of typhoid. He found a combination of arsenic and mercury very useful in treatment, the symptoms rapidly subsiding under it with no by-effects, not even when the urine showed much albumin and tube-casts.

54. **Spirochetes in Rats.**—Monti relates that he was able to induce infectious jaundice in guinea-pigs inoculated with spirochetes found in a number among eighty rats examined in the Bergamo district. No cases of infectious jaundice were known in the district or had been known, and yet the rats harbored the parasites.

56. **Changes in the Sweat Glands with Insufficiency of the Kidneys.**—Montalbo's report of much experimental and clinical experience is illustrated, showing the changes in the sweat glands after nephrectomy or with kidney disease. The diversion through the sweat glands of the waste substances normally eliminated through the kidneys leads to irritation of the sweat glands and this in turn to various changes.

57. **Pain and Swelling of the Tuberosity of the Tibia.**—Lollini describes a case which shows, he says, that the trouble to which Schlatter and Osgood called attention in 1903 is the result of disturbances in ossification from some constitutional disturbance. It does not result from trauma or inflammation alone. He gives the roentgenogram of his case. The patient was a young man of a weakly constitution. He fell, injuring the knee, and presented the symptoms of the Schlatter and Osgood lesion, but the Roentgen rays showed the same defect in development in the tuberosity of both legs.

Riforma Medica, Rome

July 7, XXXIII, No. 27, pp. 689-708

60 D. Cirillo, a Pioneer Hygienist and Martyr, 1739-1799. A. Ferrannini.—p. 690.
61 War Wounds of the Limbs. S. Salinari.—p. 639. Commenced in No. 25, p. 654.

July 14, No. 28, pp. 709-728

62 *Diplococcus Erysipelas with Septicemia. A. Connio.—p. 709.
63 *War Nephritis with Uremia but no Edema; Two Cases. L. Eustachio.—p. 712. Commenced in No. 26, p. 674.
64 Social Welfare Work and Ideals of the Medical Profession in America. (Le idealita sociali della medicina nord-americana.) L. Devoto.—p. 720.
65 Present Status of Surgery of Skull Wounds. E. Aievoli.—p. 721.

62. **Diplococcus Erysipelas.**—The patient was a soldier with a history of chronic conjunctivitis and recent syphilis. The pneumonia diplococcus was found in pure cultures in the exudate of the typical erysipelatous lesions on scalp and face and the course was characteristic of diplococcus affections, with a febrile crisis the seventh day.

63. **Nephritis Without Edema.**—Eustachio discusses the literature on the subject of war nephritis, and the various theories advanced to explain it. In treatment, besides the usual measures, repose, warm uniform temperature, etc., the diet must be regulated by the urea content of the blood and the diastasic ferment in the urine. He warns that salt must not be dropped entirely from the diet. Animals fed without salt are unable to stand this long, and although the tissues in nephritis may be saturated with salt, yet it does not seem to be in the electrolytic condition suitable to carry on the metabolic and other vital functions of the organism. This is the reason, he says, why milk is so excellent in nephritis, as it contains just enough sodium chlorid to answer the demands of the tissues without harming the diseased organ. He thinks the Karell course of dieting admirable for the purpose, restricting the patient to 800 c.c. of milk, given at four-hour intervals during the day for a week. Thirst is combated by moistening the lips, and hunger by chewing a little toast. After a week of this, one egg is allowed, without salt, and other fluids may be substituted as the ordinary diet is gradually resumed, but the total of 800 c.c. must not be surpassed. The food should always be salt-poor but may include meat, fresh water fish, unsalted butter, cheese, eggs, rice, unsalted bread, potatoes, peas, beans, fruit, tea, coffee, chocolate, etc. With the diet thus regulated the heart and kidneys are spared to the utmost. He insists that nephritis without edema should be treated the same as when there is edema.

Rivista di Clinica Pediatrica, Florence

July, XV, No. 7, pp. 337-392

66 *The Serious Forms of Antiserum Anaphylaxis in Man. G. Vernoni.—p. 337. Concluded in No. 8, p. 393.

August, No. 8, pp. 393-448

67 *Nutritional Disturbances in Infants. A. Ravenna.—p. 42.

66. **Serious Forms of Serum Anaphylaxis.**—Vernoni discusses separately the phenomena observed from anaphylaxis at the first injection of the antitoxin or antiserum and on repeated injection, by the subcutaneous, the intraspinal or the intravenous routes. He summarizes the numerous cases on record and emphasizes that it may be possible to give an antiserum intraspinally even in the sensitized when by any other route it would induce serious anaphylactic shock. The antibodies responsible for the shock are diffused throughout the body elsewhere but do not seem to penetrate the meninges unless they are diseased. This method of serotherapy is therefore promising when the meninges are sound, as in tetanus, but the meninges are liable to become permeable under the influence of intraspinal injections. He has compiled from the literature six cases of anaphylactic shock after intravenous injection of antitetanus serum, none fatal, and six cases from his own experience with one death. Unless the Besredka cautious method of fractioned injections can be applied, he advises to avoid the intravenous route and give the serum by the combined technic subcutaneously and intramuscularly, and possibly intraspinally.

67. **Nutritional Disturbances in Infants.**—This is the second of three lectures on this subject delivered before the medical students serving at the front but gathering for the lectures at the camp medical school. Ravenna presents the present status of our knowledge in regard to the various disturbances leading up to athrepsia which, he says, may be regarded as similar in nature to the cachexia of the aged. He does not agree with Finkelstein that it is exclusively of alimentary origin. Among the factors is the "pathologic climate" of the hospital, the orphanage or other institution. Finkelstein's "alimentary intoxication" corresponds to what has long been known as cholera infantum. Here too, various factors are at work. It affects exclusively bottle-fed infants, and the Padua school, to which Ravenna belongs, insists on an infectious factor. In one large epidemic of cholera infantum the milk from a certain model dairy was found to contain a peptonizing bacillus which survived heating to the boiling point. This bacillus was traced to the hay, and when the supply of hay was burned and hay from another source used, the epidemic died out immediately. The bacilli were not in the milk as it was drawn but probably got into it from the air. Investigation has shown repeatedly, he says, that cholera infantum is scarcely known where the cows are kept in pasture. The treatment for this epidemic form of cholera infantum and for Finkelstein's alimentary intoxication is

alike in that it can be only symptomatic after removal of the cause. After castor oil and lavage of the stomach, he gives a teaspoonful of chloroform water every two hours, flavored with syrup of orange flowers; baths with or without mustard, and from two to five drops of 1:1,000 epinephrin solution during the day to combat the low blood pressure. Physiologic saline by the drip method or subcutaneously should be given for three days or until the child can be given water by the mouth, at first by the spoonful. The water, tea or vegetable broth should be given in amounts to correspond to the amount of milk it has been getting. Breast milk gradually resumed is always the ideal, both in the physiologic and the pathologic field. The Padua school regards as a necessary department of every modern hospital for children a pavillion in the country, particularly at a higher altitude, to which the infants with chronic and wasting diseases can be sent, and especially all cases of cholera infantum. An accessory pavillion for the Padua hospital is now being constructed at an elevation of over 3,600 feet above the level of the sea, and much is hoped om this "alpine hospital pavillion."

Prensa Medica Argentina, Buenos Aires

July 10, IV, No. 4, pp. 41-52

68 *The Nervous System and the Endocrine Glands in Primary Myopathies. J. C. Navarro and C. Correas.—p. 41.
69 *Injection of Boiling Water into Exophthalmic Goiter. E. M. Olivieri and P. Ronchi.—p. 43.
70 *Differential Value of Dissolved Albumin in Stomach Content. C. B. Udaondo.—p. 45.
71 *Biology of the Tubercle Bacillus. F. H. Jauregui.—p. 47.
72 *Comparative Inefficiency of Normal Beef Serum in Treatment of Anthrax. J. Lignières.—p. 49.

68. **Necropsy Findings with Primary Myopathy.**—Nothing distinctly pathologic could be detected in either the nervous system or the glands with an internal secretion in the case of extremely severe muscular disease reported.

69. **Injections of Boiling Water in Treatment of Exophthalmic Goiter.**—Olivieri and Ronchi give the details of only four cases out of their more extensive experiences as only these four patients were under observation for from four to fifteen months. They injected 10 c.c. of boiling water alternately into each one of the lobes of the thyroid at different points each week. The simplicity of this method of treatment commends it, as all that is necessary is the needle, syringe and rubber gloves to protect the hand. There is no danger from it, and merely a sensation of burning, most marked in the skin. There is sometimes an inflammatory reaction, but this soon subsides spontaneously or under cooling compresses. The improvement that followed was marked, the nervousness subsiding, as also the tachycardia, exophthalmos and goiter in notable degree; the menstruation became regular, and the patients gained from 4 to 13 pounds in weight. They advise a trial of this treatment before operating when medical measures have failed. It will at least aid in getting the patient into better condition to stand an operation later, if deemed necessary.

70. **Dissolved Albumin in Stomach Content.**—Udaondo continues his study of the Wolff-Junghans test for cancer of the stomach, with tabulation of the findings in eight cases of simple functional hyperchlorhydria. The range was from 20 to 200. In forty cases of gastric ulcer, the range was from 100 to 400 in all except three. The range was likewise from 100 to 400 in twelve cases of duodenal ulcer. These findings show that the dissolved albumin in the stomach content—while extremely interesting and instructive in case of anacidity, as it indicates the malignant nature of the achylia—in case of hyperacidity has no diagnostic value whatever.

71. **Biology of the Tubercle Bacillus.**—Jauregui remarks in the course of his theoretical analysis of pulmonary tuberculosis, that we usually make the diagnosis of tuberculosis only when it has reached such a stage as if we diagnosed smallpox only from the pits. He also presents arguments to show that tuberculosis is able to spontaneously confer immunity. Everything tends to prove that we all have been or are or will be infected with tuberculosis, and the fact that so few develop phthisis is incontestable proof that our organisms have adapted themselves to the tubercle bacilli and got the upper hand over them, and we have thus become immunized.

72. **Serotherapy of Anthrax.**—Lignières as a practical bacteriologist and serotherapeutist of thirty years' experience, protests against some recent publications which assert that normal beef serum is effectual in the treatment of anthrax. He comments on the greater toxicity of beef serum in comparison with horse serum, even when heated, and denies that it possesses the properties against anthrax such as are manifested by any good specific serum from a horse immunized against anthrax.

Semana Medica, Buenos Aires

July 5, XXIV, No. 27, pp. 1-28

73 *Pathogenesis and Treatment of Cancer. E. Cisneros.—p. 1.
74 Paraffin and Oil Film Treatment of Burns. J. M. and M. E. Jerez.—p. 20.

73. **Electrocauterization of Cancer.**—Cisneros expatiates on the superiority of electro-ignition or electrocauterization as a systematic treatment of cancer. For eighteen years he has been using this method of treating cancer and has been impressed with its efficacy. The lesion is left open afterward and it is easy to apply the electrolysis anew at the slightest trace of recurrence. The eschar does not invite infection, and there is no danger of injury from radiation as with the actual cautery. The ideal is the combination of surgery and electro-ignition or electrocauterization. This can be counted on to cure 100 per cent. of all operable cases and also cure many considered beyond the pale of operability.

Siglo Medico, Madrid

July 7, LXIV, No. 3317, pp. 485-504

75 *Gonococcus Lesions in Periosteum. E. M. Villapadierna.—p. 486.
76 Fractures of the Lower Jaw. J. Losada.—p. 487.
77 Mitral Stenosis Without Presystolic Murmur. R. Villegas.—p. 489.
78 *Coagulation Test for Syphilis. A. Spordelli and G. Fischer.—p. 490.
79 Dietetic Treatment of Diabetes. N. Santos.—p. 500. Continuation.

75. **Gonococcus Localizations in the Periosteum.**—The robust young woman in the second week of acute gonorrhea developed pain at the front of the lower half of the tibia. The skin was apparently normal but the region was tender along with the local pains. Under repose the lesion gradually grew less and less painful until merely a patch somewhat harder than the rest was left by the end of the week. The knee then became affected in the same way, the inflammation restricted solely to the internal condyle of the femur, the rest of the joint normal. There were no signs of syphilis, but gonococci were numerous in urethra and vulva. Under intravenous injection of sodium salicylate improvement followed, and soon no trace was left of the periostitis. Villapadierna has not been able to find any other case on record in which the process was restricted exclusively to the periosteum. Cases of pain in the heel bone for which the gonococcus was responsible have been published. In one such case, unpublished, the clavicle was affected likewise.

78. **Serodiagnosis of Syphilis.**—Sordelli and Fisher conclude from their tests of the Klinger and Hirschfeld coagulation method of differentiating syphilitic serum, that it is specific and sensitive, like the Wassermann reaction. Hence it offers an excellent means for controlling the findings with the Wassermann test.

Nederlandsch Tijdschrift voor Geneeskunde, Amsterdam

June 23, I, No. 25, pp. 1999-2094

80 *Typhoid in Surinam. C. Bonne.—p. 2018.
81 *Mortality from Tuberculosis in the Netherlands. R. H. Saltet.—p. 2035.
82 *Recovery from Otogenous Meningitis. F. H. Quix.—p. 2040.
83 Medical Impressions of America. (De Panamakanaal-Zone.) C. W. F. Winckel.—p. 2058. Continuation.

June 30, No. 26, pp. 2107-2190

84 Rembert Dodoens, 1517-1585. E. C. van Leersum.—p. 2108; J. G. de Lint.—p. 2126.
85 Dodeneus and His Influence on Materia Medica and Medicine in General. (Dodonaeus als kruidkundige.) F. W. T. Hunger.—p. 2118; M. A. van Andel.—p. 2131.

80. **Typhoid in Dutch East Indies.**—Bonne's report deals exclusively with Surinam where fevers of all kinds are exceptionally prevalent. About 25 per cent. of the cases of typhoid in the principal town were in children. The proportion in children throughout the country is probably still higher in reality as many cases must escape recognition.

81. **Mortality from Tuberculosis in the Netherlands.**—Saltet shows by tabulated statistics that the mortality from pulmonary tuberculosis presented a gradual decline from 13.5 per 10,000 inhabitants in 1901 to 10.6 in 1913. The general tuberculosis mortality dropped likewise during the same period from 19.6 to 14 per 10,000 in 1914. But since the war began, the figures have risen respectively to 12.6 for the pulmonary and to 16.8 for the general tuberculosis mortality.

82. **Recovery from Otogenous Meningitis After Repeated Operations.**—The instructive case reported by Quix was in a woman of 25 who for a year had had otitis media with cholesteatoma formation in the mastoid. A radical operation failed to prevent the involvement of the labyrinth and development of Menière's disease. From the labyrinth the process invaded the dura and part of the cerebellum, the lumbar puncture fluid containing many pus cells and diplococci. Operative opening up of the labyrinth gave some relief but did not reach the focus in the posterior cranial fossa. This was then reached and drained separately. By this means the extensive infectious process in the meninges, brain substance and around the spinal cord was finally cured. General anesthesia had been applied on five separate occasions and—except for ligation of the internal jugular vein—about every operative procedure known to the otologist had been applied, as is described in detail. The case teaches that when the cerebrospinal fluid contains abundance of pus cells and bacteria, this indicates a diffuse process in the meninges but that repeated extensive operative measures and ample drainage with rubber drains and gauze above and lumbar puncture below may ensure recovery. It is the first case of the kind in the Netherlands in which the patient recovered after an extensive operation.

Hospitalstidende, Copenhagen

July 4, LX, No. 27, pp. 645-668

86 *Chronic Duodenal Ulcer. T. Rovsing.—p. 645. Commenced in No. 26, p. 621.

86. **Chronic Duodenal Ulcer.**—Rovsing analyzes his experiences with 133 cases of chronic duodenal ulcer, saying that the Bucquoy-Moynihan set of symptoms occurs more frequently with duodenal ulcer than with ulcer elsewhere, but that the very same symptoms may be observed with an ulcer at the pylorus or near it and even higher up in the stomach. Tests of stomach functioning and Roentgen examination often aid in differentiation, as negative findings in the stomach, when there have long been symptoms of an ulcer, certainly suggest duodenal mischief. To blindly follow those who rely on the anamnesis alone, is to mistake a gastric for a duodenal ulcer in many cases. The pain and tenderness with gastric ulcer are usually to the left of the median line and to the right with duodenal ulcer. The quality of the food does not seem to influence the pains, as is liable with gastric ulcer. The appetite is usually unimpaired. Blood in the stools is a far more frequent finding with duodenal than with gastric ulcer; he found it in seventy-four of his cases. In nineteen there had been hematemesis. In his experience, retention in the stomach very rarely occurred with a Bourget test meal even when the operation revealed considerable stenosis of the pylorus. There may be much dilatation of the stomach but retention is exceptional. On the other hand, with gastric ulcer and a similar degree of dilatation there is marked retention. This absence of retention has often proved an instructive differential sign. In three of his cases of perforation the patients insisted that they had never had any symptoms of any kind until the perforation occurred. Besides gastric ulcer, gallstones and nervous dyspepsia, "nervousness" or pure hysteria are the mistakes most frequently made in diagnosis. For many of his patients the bitterest feature of their cases was that eminent medical authorities had decided that their trouble was due to hysteria. One patient in particular had had for thirteen years his periodic attacks of pains and vomiting and had been examined and treated again and again by leading physicians. As each time the test meals showed normal stomach conditions, his trouble had been declared to be purely nervous. He finally applied to the surgeon on his own initiative, and Rovsing recognized the duodenal train of symptoms. The operation showed a perforated duodenal ulcer adherent to the pancreas. Another patient was a physician and he had decided to take a course of treatment in a hospital for nervous and mental diseases as his disturbances had been ascribed to hysteria. The operation showed the duodenum circularly constricted with an ulceration extending for 4 cm. His delight at being freed from the stigma of male hysteria surpassed his satisfaction in getting rid of his painful and dangerous intestinal lesion.

As to operative treatment, Rovsing has become converted to the superior advantages of excision of the ulcer plus the usual Heinecke-Mikulicz pyloroplastic operation, only modified in that he does not stop with incising the pylorus but prolongs the incision downward into the anterior surface of the duodenum and up into the anterior wall of the stomach. If the ulcer is in the anterior wall, he makes an elliptical incision around the ulcer and continues it up into the stomach. If in the posterior wall, he reaches it through the duodenum, excising it from the mucosa side. A small profusely bleeding ulcer can be drawn up with a pursestring suture and then be sutured together across. This danger of hemorrhage from the ulcer sooner or later is a grave menace; he has lost patients from this cause years after all trouble had apparently subsided after a gastro-enterostomy. Among his twelve patients not operated on, five had threatening hemorrhage later. One succumbed; three recovered under dietetic treatment; one apparently recovered but eight years later had another hemorrhage; the others have had no recurrence to date. By his method of opening up the duodenum for inspection from the pylorus to the papilla and even beyond, he can discover minute ulcers and render them harmless by excision or by drawing them up with a pursestring suture. The latter is otherwise impracticable. If the incision is too long for the Mikulicz technic, the Finney horseshoe anastomosis between the duodenum and the stomach can be applied. His method is particularly advantageous, he reiterates, in case of a perforated duodenal ulcer, as he shows by the tabulated details of twelve such cases, all with prompt and smooth recovery. He tabulates further the outcome in his total 118 cases of duodenal ulcer classified according to the nine methods of treatment applied, the testimony all confirming the promising future of his latest technic, excision of the ulcer, extending the incision up into the stomach, plus transverse suture of the incised pylorus. His total mortality in 133 cases was twelve, and there was recurrence in ten cases. The latter group had all been treated with gastro-enterostomy and entero-anastomosis.

Ugeskrift for Læger, Copenhagen

June 28, LXXIX, No. 26, pp. 1039-1076

87 Psychosis After Gunshot Injury of Brain with Bullet Left in the Skull. M. Anchersen.—p. 1039.

88 *Pluriglandular Insufficiency in Young Woman. Fog.—p. 1046.

89 Threatening Hemorrhage from the Rectum After Self-Introduction of a Thermometer. N. P. Ernst.—p. 1053.

88. **Pluriglandular Insufficiency in Young Woman.**—The girl of 18 had never menstruated, but for the last three years had severe epistaxis once a month. She entered the hospital on account of an abscess in the sacro-iliac region. An illustrated description of the case is given, emphasizing the various signs and symptoms demonstrating insufficiency on the part of certain glands with an internal secretion. The list includes besides hypotrichia, dwarf growth, infantilism and backward mentality, slight pigmentation of the skin, latent tetany, exophthalmos, slight goiter, hyperglycemia without glycosuria, and defective development of the genital organs. There were also congenital heart disease, apical infiltration and scoliosis. None of the other members of the family displayed this glandular insufficiency.